

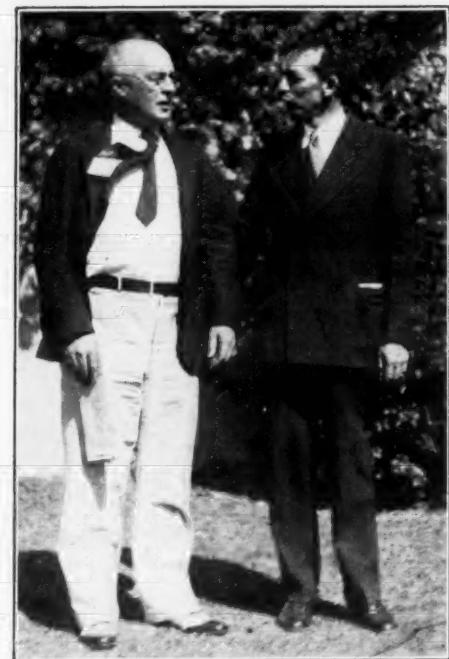
Dealer-Distributor Meetings Preface Spring Drive



Miss Louise Wolf, daughter of Frank Wolf, Buffalo G. E. distributor, accompanied her parents to the Florida convention.



When General Electric men attended the recent distributors' convention at Coral Gables, Fla., a group of them took the air in the blimp in the background. Left to right: A. S. Dunning, Duluth, Minn.; Rex Cole, New York City; P. B. Zimmerman, manager G. E. refrigeration department; George A. Hughes, president, Hotpoint ranges; Mayor Wyman, Coral Gables, Fla.; City Manager Lee, Miami, Fla.; T. K. Quinn, vice president, General Electric Co.; J. Kehoe, asst. Dade county solicitor.



The East and West talk it over at Miami, Fla. Charles Gould (left), Portland, Me., distributor, with Gordon Prentice, Seattle.



Norge factory officials spoke at a recent dealer convention of Ludwig Hommel & Co., Pittsburgh distributor. Included in the group are Howard Blood and John Knapp, president and vice president, respectively, of Norge, and Mr. Hommel.



Officials of Gibson Electric Refrigeration Corp. recently went East for the meeting of Louis Buehn Co., Philadelphia distributor. In the front row is F. A. Delano, sales manager; C. J. Gibson, president; Mr. Buehn, and Frank Gibson, Jr., vice president.



R. T. Smith, chief Gibson engineer, explains the Gibson refrigeration system to a group of salesmen.



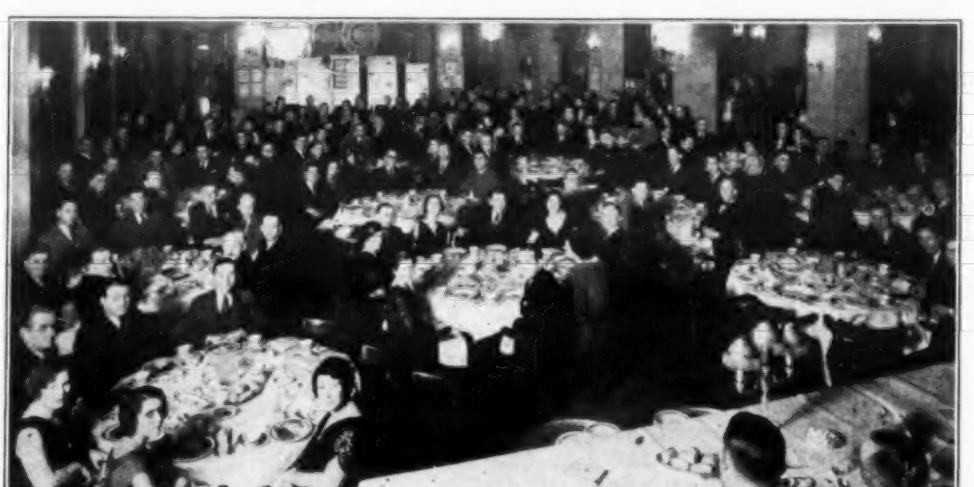
Kelvinator executives recently conducted dealer convention of Mathews Refrigerator Co., Montgomery, Ala., and Clark & Jones Piano Co., Birmingham.



Sales executives from Cincinnati office of Griffith Victor Distributing Corp. recently visited the Servel plant.



Columbia Distributors, Inc., planned 1932 Norge sales at Mayflower hotel, Washington, D. C.



Baltimore dealers were entertained by Columbia Wholesalers at Lord Baltimore hotel.

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

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DETROIT, MICHIGAN, FEBRUARY 24, 1932

Entered as second class matter
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY
THREE DOLLARS PER YEARNEW YORK LEADS
OTHER STATES IN
N. E. L. A. FIGURESIllinois Second in 1931
Sales; Maryland Hits
152% of Quota

NEW YORK CITY—More than twice as many electric refrigerators were sold in 1931 in the state of New York as were sold in any other state in the Union, according to estimates released by the Electric Refrigeration Bureau. The figures cover household refrigerators only. A complete tabulation of these figures is printed at the bottom of this page.

Household refrigerators sold in New York numbered approximately 185,226. Second to New York was Illinois, with 92,472; third, Pennsylvania, with 78,117; fourth, California and New Jersey, tied with estimates of 53,156 each; and fifth, Ohio, with 50,558.

Quotas for each state based on its number of wired homes as of Jan. 1, 1931, were set up by the bureau. Maryland led in percentage of this quota sold, with 152.51 per cent. Second came West Virginia, with 143.37 per cent of quota, and third, New Mexico, with 140.3 per cent of quota sold.

Estimated total sales for the whole United States numbered 948,676, a percentage of 94.52 of the quota of 1,003,650 refrigerators originally set by the Electric Refrigeration Bureau in January, 1931.

KELVINATOR SELECTS
2 DISTRICT MANAGERS

DETROIT—George R. Ewald has been appointed district manager assigned to the Pittsburgh territory by Kelvinator Corp., it was announced following his completion of a term of factory training.

Mr. Ewald is a graduate in law of the University of Louisville, and a native of Louisville, Ky. At one time he was manager for the Ratcliffe Co. of Ohio, dealing in electric refrigeration and radio. He has had experience as a banker, and as wholesale manager of Collins-Moore, investment and brokerage house.

For five years he practiced law in the law department of the Louisville & Nashville Railroad.

Decatur District

DECATUR, Ill.—M. S. Bandoli, recently appointed district manager by Kelvinator Corp., has been assigned headquarters at Decatur by H. A. Dahl, regional manager.

Mr. Bandoli is a native of Eau Claire, Wis.; for 10 years he was with the Northern States Power Co. working in Wisconsin and Minnesota. Later he spent two years with the Illinois Power & Light Co. at Decatur as sales manager.

Mr. Bandoli was a close friend of the late Fred J. Foersterling, former Kelvinator regional manager.

GIBSON HOLDS SERIES OF
THREE DEALER MEETINGS

PEORIA, Ill.—Three dealer meetings, in Peoria, Rockford, and Aurora, Ill., were held last week by the Conron Distributing Co., handling Gibson electric refrigerators with headquarters in this city.

Frank S. Gibson, F. A. Delano, R. T. Smith, Elmer Born of the service department, W. R. Marshall, and H. G. Seldomridge, middle west district manager, represented the Gibson Electric Refrigerator Corp.

FADA MAKES KEHOE PACIFIC
COAST REPRESENTATIVE

LONG ISLAND CITY—S. H. Kehoe has been appointed sales representative on the Pacific Coast for Fada electric refrigerators, radio and electric irons, according to announcement by L. J. Chatten, vice president.

Eight Cabinets in
1932 Seeger
Line

ST. PAUL—Eight refrigerator cabinets, three of which are all-porcelain, comprise the 1932 line just announced by the Seeger Refrigerator Co. in a letter sent to customers by John J. Leonard, sales manager.

New hardware, in a simple modern design, is one of the features of the models. A continuous hinge, which was first featured on the 1931 models, has been retained on DeLuxe cabinets this year. Curved legs are also standard equipment.

List prices f.o.b. St. Paul are as follows: model L-4, \$55, net capacity 4 cu. ft.; L-5, \$70, net capacity 5 cu. ft.; L-6 \$84, net capacity 6 cu. ft.; L-7, \$94, net capacity 7 cu. ft. All these models have porcelain interior and lacquer exterior.

Prices on the four all-porcelain models are: model P-4, \$64.50, net capacity 4 cu. ft.; P-5, \$80, net capacity 5 cu. ft.; P-6, \$96, net capacity 6 cu. ft.; P-7, net capacity 7 cu. ft.

KELVINATOR REPORTS
HALF MILLION LOSS

DETROIT—Kelvinator Corp. reports a net loss of \$508,334 for the first quarter of the 1931-1932 fiscal year, which ended Dec. 31.

This quarter, being at the low point of the yearly seasonal trend, usually shows a loss, said G. E. Mason, president of Kelvinator Corp., commenting on the statement.

The loss for the same period last year was \$332,612.

"This period was particularly dull this year," he continued, "due to withholding presentation of new models. This resulted in a decrease of sales volume. Last year the annual convention which was held in October was a decided stimulant to December quarter business."

January shipments were 23 per cent in excess of last year, and orders received through Feb. 15 were ahead of last year, Mr. Mason stated.

DAVIS APPOINTED DISTRICT
MANAGER OF FRIGIDAIRE

DENVER—Dorsey Davis, who has advanced from a position as salesman with Frigidaire Corp. six years ago, has been appointed district sales manager with headquarters in Denver. Mr. Davis' territory covers Colorado, Wyoming and New Mexico.

He succeeds H. L. Harbison, who takes a similar position in the Oregon-Washington territory.

1931 Refrigerator Sales by States
As Reported by the N.E.L.A.

During 1931, the Refrigeration Bureau of the National Electric Light Association, in cooperation with the refrigerator manufacturers, sponsored a national campaign to "Sell a Million Refrigerators in 1931." Quotas were set up for each state based on its number of wired homes as of Jan. 1, 1931. During January, 1931, estimates of the actual number of refrigerators sold in each state during 1931 were made by the Refrigeration Bureau. These, with the % of Quota Sold, are given below. The figures cover household refrigerators only.

State	Estimated Total Sales	N.E.L.A. Quota Year 1931	% of Quota Sold	State	Estimated Total Sales	N.E.L.A. Quota Year 1931	% of Quota Sold
Alabama	6,244	7,600	82.16	Nevada	948	700	135.43
Arizona	3,622	2,850	127.09	New Hampshire	3,797	5,050	75.19
Arkansas	4,210	4,900	85.92	New Jersey	53,156	46,200	115.06
California	53,156	71,550	74.29	New Mexico	1,894	1,350	140.30
Colorado	6,967	8,550	81.49	New York	185,226	152,150	121.74
Connecticut	18,992	16,750	113.39	North Carolina	11,391	9,850	115.64
Delaware	1,887	1,750	107.83	North Dakota	1,806	2,550	70.82
Florida	11,149	10,700	104.20	Ohio	50,558	65,950	76.66
Georgia	10,220	9,700	105.36	Oklahoma	10,146	11,450	88.61
Idaho	2,847	3,300	86.27	Oregon	5,695	9,850	57.82
Illinois	92,472	79,450	116.39	Pennsylvania	78,117	85,500	91.36
Indiana	24,829	29,300	84.74	Rhode Island	5,663	7,950	71.23
Iowa	11,460	18,750	61.12	South Carolina	4,905	4,800	102.19
Kansas	9,498	14,050	67.60	South Dakota	1,888	3,250	58.09
Kentucky	10,432	11,450	91.11	Tennessee	7,594	9,950	76.32
Louisiana	5,714	7,600	75.14	Texas	29,426	27,850	105.66
Maine	5,687	7,350	77.37	Utah	4,446	5,300	83.89
Maryland	28,748	18,850	152.51	Vermont	3,271	3,050	107.25
Massachusetts	39,792	50,350	79.08	Virginia	14,238	10,450	136.25
Michigan	28,477	47,150	60.40	Washington	8,138	18,700	43.52
Minnesota	14,646	19,700	74.35	West Virginia	10,466	7,300	143.37
Mississippi	3,268	4,000	81.70	Wisconsin	12,289	26,150	46.99
Missouri	36,845	27,750	132.77	Wyoming	1,882	1,500	125.47
Montana	2,680	3,300	81.21	TOTAL	948,676	1,003,650	94.52

Kelvinator's Barnstormers



S. D. Camper, regional manager; Vance Woodcox, sales promotion manager; and W. A. MacCrillish, Cincinnati, at recent sales convention.

THREE PORCELAIN
CABINETS ADDED
TO MAJESTIC LINEPrices on 1932 Line of
Refrigerators Start
At \$159.50

CHICAGO, Feb. 22.—Announcement of three all-porcelain models, cabinets of which are manufactured by Seeger, and of the price list on all 1932 models, has just been made by the Grigsby-Grunow Co., makers of Majestic refrigerators.

Prices range from \$159.50, on model 245, a 4-cu. ft. model, to \$450, on the 712 model, a 12-cu. ft. twin compressor-equipped, all-porcelain refrigerator.

On each model, the prices are as follows: model 245, capacity of 4 cu. ft., \$159.50; model 255, capacity 5 cu. ft., \$189.50; model 706, capacity 6 cu. ft., \$244.50; model 275, capacity 7 cu. ft., \$209.50; model 710, capacity 10 cu. ft., \$425; model 712, capacity 12 cu. ft., \$450.

Models 706, 710, and 712 are the all-porcelain refrigerators. The two latter models are both equipped with twin compressors, one on either side at the top of the food compartment.

Other features of the Majestic line are Easy Out trays, lighted interiors, and Elasto exterior finish on the models which are not all-porcelain.

A "run" on sales promotion literature covering the new Majestic line is reported by H. G. McComb, sales promotion manager. The Majestic scrapbook, a book containing one of each of all Majestic literature, magazine advertisements, etc., was out of print quickly, and a new edition is now being published.

Two new house organs, one for dealers, one for salesmen, have made their first appearance. "Polar Bear" the dealers' house organ, is supplemented by "Majestic's Here's How," giving the Majestic story from the salesmen's standpoint.

V. E. Vining, assistant sales manager of the refrigeration department, has returned from a tour of distributorships in the East, and J. F. Ditzell, who has been directing a series of dealer-distributor conventions, is still on the Pacific Coast.

Western Meeting

DEL MONTE, Calif.—Pacific Coast distributors for the Grigsby-Grunow Co. attended a convention in the Del Monte Hotel, here, recently to see the new Majestic line of refrigerators.

The entire Majestic line was shipped from Chicago by express for the convention. B. J. Grigsby, president of the company, and John F. Ditzell, refrigerator sales manager, were the principal speakers.

Following the business sessions, a surprise birthday party was given for Irving Watson, member of Ungar & Watson, Inc., Los Angeles distributor for the company. Golf matches on the Pebble Beach course were also arranged as part of the entertainment.

Vining Returns

BALTIMORE—V. E. "Sam" Vining, assistant general sales manager of the refrigeration division of Grigsby-Grunow Co., has returned to Chicago after several days in the Baltimore-Washington sales area.

Mr. Vining spent much of his time with the Eisenbrandt Co., Majestic distributor in the territory, familiarizing himself with the sales situation and problems of the area.

VIRGINIA PUBLIC SERVICE
PROMOTES COE

ALEXANDRIA, Va.—William T. Coe, former salesman in the Clarendon district of the Virginia Public Service Co., has been made assistant sales manager of the northern division with headquarters here.

Mr. Coe succeeds Richard R. Bassett, who becomes commercial manager of the eastern division with headquarters at Newport News, Va.

How To Get Prospects

As Told By Miss Wise, Utility Home Economist

CANTON, Ohio—More than 5,000 names of club, church, grange, lodge, and society women of Canton and vicinity have been put on the prospect list for the General Electric refrigerator sales division of the Ohio Power Co. by Miss Margaret Wise, hostess of the company, in the one year the company has maintained hostess rooms in its new business.

Miss Wise continually contacts new groups so that the same names are not repeated on the prospect list. Here the society, church, farm, and lodge editors of city papers are of great assistance.

The Ohio Co. offers club, lodge, church, grange, and private party groups the use of a bright card room, furnishes card tables and tallies, score pads, and a door prize.

At one end of the hostess room is a raised platform containing the model kitchen. Here, after all the guests have arrived, Miss Wise gives a 20-minute talk preceding the program or card games, on the advantages of electric refrigerators, ranges, mixers, and dishwashers.

She swings open the door of her General Electric to show the fresh vegetables that have been kept there for four weeks, appetizing salads and gelatins, sherbets and mousse.

She takes up a family food budget for four people, demonstrating how a housewife can buy her week's food supplies at quantity prices when they can be kept fresh in the electric refrigerator, showing the savings made by such buying. She then puts down these figures in black and white on a large board.

At the end of the party, Miss Wise and a maid serve the salads or desserts which have been previously exhibited, with coffee and rolls or cake. The door prize is a cake which the hostess has mixed in the electric mixer while she has been talking, and later frosted and slipped into the refrigerator for the frosting to set.

17 DEALER OUTLETS APPOINTED BY SERVEL

EVANSVILLE, Ind.—Seventeen new dealer outlets have been announced by Servel Hermetic Distributors all over the United States, according to word received at Servel headquarters, here.

The new dealers are: The William Hall Co., Chatham, N. Y.; Nohava Hardware & Implement Co., Lonsdale, Minn.; Sanborn Lumber Co., Belleville, Kan.; Andrews Music Co., Charlotte, N. C.; Out West Tent & Awning Co., Colorado Springs, Colo.; Ransom Electric Co., Nashville, Tenn.

Parker-Gardner Co., radio and musical instrument firm, Charlotte, N. C.; Radio Vision Service, Buffalo; Shierling Music Store, Union City, Ind.; J. H. Machens, St. Charles, Mo.; Pearson Piano Co., Kokomo, Ind.; Sanburn Lumber Co., Scandia, Kan.; F. J. Rector & Co., Pendleton, Ind.

Simmons Bros., Winchester, Ind.; Showboat Radio Stores, St. Louis; Guarantee Electric Co., Edwardsville, Ill.; South Side Radio & Service Co., St. Louis.

BUCKEYE DISTRIBUTING CO. FORMED IN CALIFORNIA

LOS ANGELES—A firm to handle distribution of Buckeye electric refrigerators has been formed here under the name of Kirkpatrick, Foote, and Auerbach, with showrooms and headquarters at 1350 E. Sixth St.

W. L. Kirkpatrick, senior partner in the firm, was formerly general manager of the refrigerator department of the Platt Music Co., and prior to that, Pacific Coast manager for Copeland refrigerators.

Claude E. Foote was formerly southern California manager of the H. R. Curtiss Co., distributor for Philco radios in the territory. J. Auerbach is the third partner.

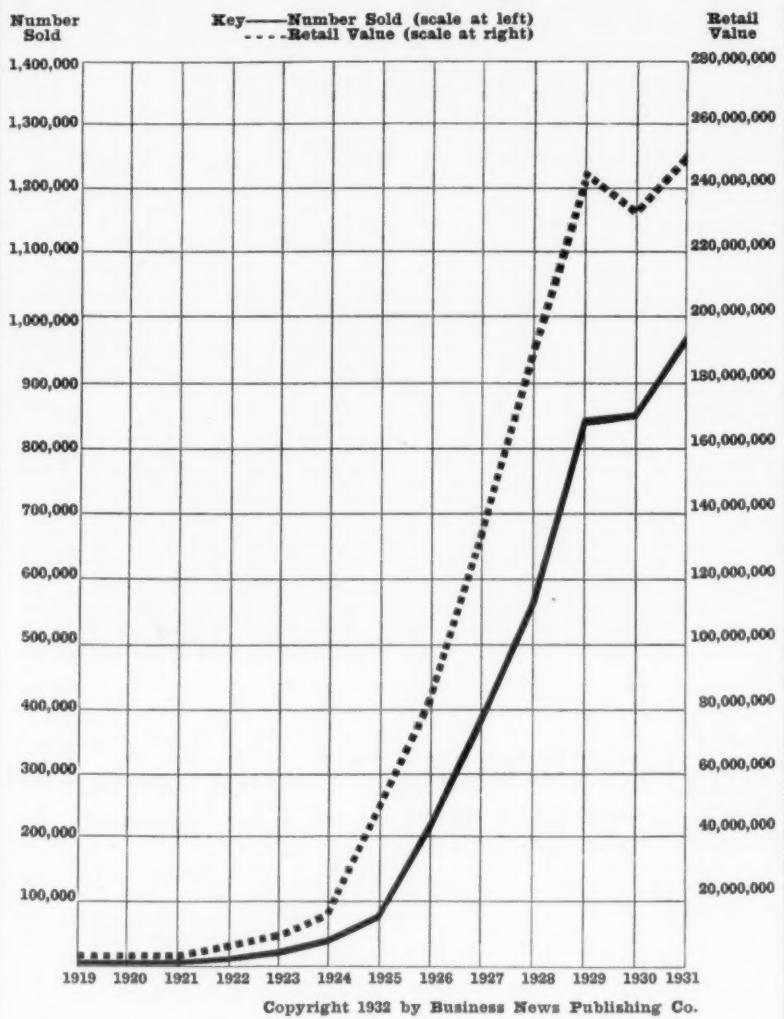
FOUR MAKES EXHIBITED AT HARDWARE MEETING

PHILADELPHIA—Four makes of electric refrigerators were included among the 155 exhibits at the thirty-first annual convention and exhibition of the Pennsylvania and Atlantic Seaboard Hardware Association, Inc., in the Commercial Museum, Feb. 8 to 12.

The Klein Stove Co., of this city, exhibited the Leonard electric refrigerator in two booths in opposite ends of the exhibition hall. The W. Bingham Co., Cleveland, exhibited the Bohn refrigerator, and the Alaska Freezer Co., Inc., Winchendon, Mass., showed the Alaska household electric freezer.

Frigidaire was exhibited as part of a "model hardware store" set up near the entrance to the hall.

Household Electric Refrigerator Sales



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Blood Speaks at Chicago Norge Meeting

AUSTRALIAN FRIGIDAIRE SALES HEAD RESIGNS

SYDNEY, Australia—Fred C. Lovelock, general sales manager and director of Frigidaire sales for Warburton Franki, Ltd., has resigned his position to become a member of the Board of Directors of George Brown & Co., Ltd., importers of electrical goods.

Mr. Lovelock has been in the electrical merchandising field for 20 years.

BALTIMORE DISTRIBUTOR FORMS NEW STAFF

BALTIMORE—Columbia Wholesalers, Inc., distributor for the Norge electric refrigerator has entered this year for the first time the field of apartment house and building trade refrigeration sales.

Martin Abbey, Stanley F. Hupfelt, and J. Spitzer compose a new department formed for sales to apartment houses.

Majestic Export Offices



Executive offices of Export Sales Manager H. J. Scheel of Grigsby-Grunow Co., manufacturer of Majestic electric refrigerators and radios.

Analysis of Household Sales Figures Gives New Retail Valuation Curve

By Stanley A. Dennis

Statistical Editor, 1932 Refrigeration Directory

1931, inclusive, are shown in the following tabulation:

RETAIL VALUE OF NEMA HOUSEHOLD SALES

Based on average retail prices estimated from Nema figures for 1928-1931, inclusive.

Year	No. of Average Units	Age	Total Value
1928	377,826	\$334	\$ 126,193,884
1929	704,497	292	205,713,124
1930	707,050	275	194,438,750
1931	802,356	258	207,007,848

DETROIT—Further analysis during the past week of statistics now available on the sales of household electric refrigerators has developed an entirely new (and perhaps better) set of figures, and corresponding graphic curve, showing by years the retail value of the total sales of all manufacturers. The significant features of the new retail valuation curve (shown in the chart above) are the lowered "peak" for 1929 and a "rise" from 1930 to 1931. The number of refrigerators sold annually and its corresponding curve remain unchanged.

In last week's issue (February 17) of ELECTRIC REFRIGERATION NEWS, there were published revised estimates, and curves, showing by years the total number of household refrigerators sold and the estimated retail value for each year's sales. The average retail price for each year was not shown. The tabulation is reprinted below with the addition of a column showing the average retail prices that were used.

TOTAL RETAIL VALUE OF ALL HOUSEHOLD SALES

Based on sales managers' estimates of average retail price.

Year	No. of Average Units	Age	Total Value
To '20	10,000	\$600	\$ 6,000,000
1921	5,000	550	2,750,000
1922	12,000	525	6,300,000
1923	18,000	475	8,550,000
1924	30,000	450	13,500,000
1925	75,000	425	31,875,000
1926	210,000	390	81,900,000
1927	390,000	350	136,500,000
1928	560,000	340	190,400,000
1929	840,000	325	273,000,000
1930	850,000	286	243,100,000
1931	965,000	245	236,425,000

Total...3,965,000....\$1,230,300,000

The average retail prices used in the tabulation shown above were derived from estimates made by a number of sales managers of various manufacturing companies, men who for years have been intimately acquainted with the annual changes in retail prices.

The result of this method of estimating the total retail valuation for each year was a high "peak" of \$273,000,000 in 1929, a drop to \$243,000,000 in 1930, and another drop to \$236,425,000 in 1931. It should be kept in mind that these figures represent the sales of all manufacturers.

Remembering that sales by the 10 companies that are members of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) represent at least 80 per cent of the sales of all manufacturers of electric refrigerators, it became advisable to check the above estimated retail values against the sales records of the Nema companies, for 1928, 1929, 1930 and 1931, the only years for which Nema has compiled statistics. These figures—the total number of refrigerators sold by Nema manufacturers, the average retail prices of the Nema sales, and their total dollar value for 1928 to

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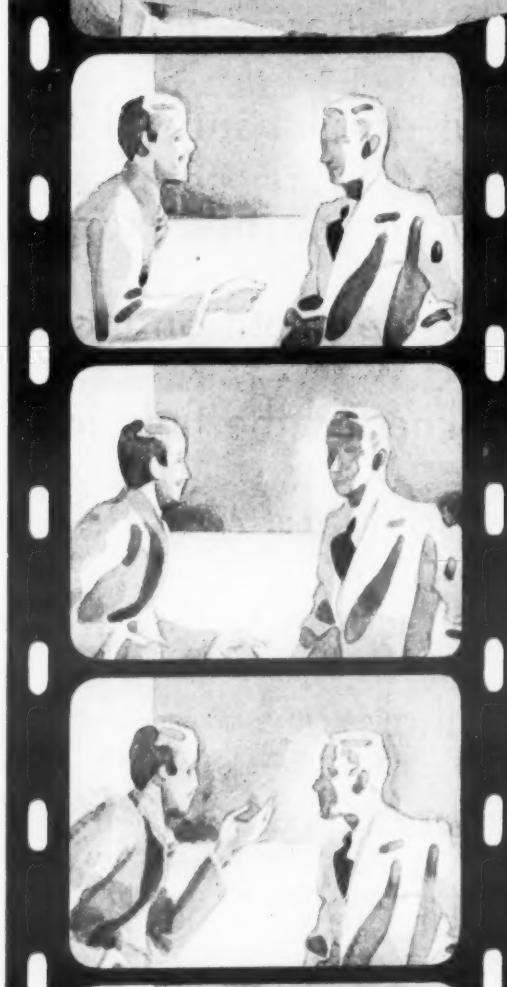
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Your
Commercial Prospects
should see this film



CONDITIONED AIR REFRIGERATION



THE new film on General Electric Conditioned Air Refrigeration tells graphically and effectively how Conditioned Air not only cools food five times faster, keeps fresh food fresh for days, cuts shrinkage in half, ends trimming of meats and vegetables and transfer of food odors, but actually costs 25% less to operate than any other form of bulk food preservation.

This film shows how General Electric cabinets and display cases constantly maintain temperatures of 36° to 40°

and relative humidity of 80% to 85%, scientifically determined as the ideal condition for food preservation—how cold, moist air is always in motion—washed clean and circulated by force to every part of the cabinet five times every minute—day and night!

Make sure that every one of your commercial salesmen has this film to show his prospects. It is the most instructive and effective means he can employ to convince commercial users of the advantages and economy

of General Electric Conditioned Air Commercial Refrigeration.

Conditioned Air Refrigeration is available in both storage cabinets and display cases. The storage cabinets may be had either as self-contained units or for remote installation. All have the famous, current-saving G-E sealed-in-steel mechanism and carry a complete 3-Year Guarantee.

General Electric Company, Electric Refrigeration Department, Section DF-22, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.

conditioned air
GENERAL ELECTRIC
COMMERCIAL REFRIGERATION

Millions have joined the ever-widening G-E Circle, presided over by Grace Ellis, N. B. C. Coast to Coast network, daily at noon (except Saturday); Sunday, 5:30 p. m. (E. S. T.)

J. B. BAILEY TO HEAD INDIANAPOLIS LEAGUE

INDIANAPOLIS—J. B. Bailey, commercial manager of the Indianapolis Power & Light Co., was chosen president of the Electric League of Indianapolis by the newly-elected executive committee, last week.

B. Olsen, manager of General Electric Co. here, was named vice president; R. L. Brown, manager of Westinghouse Electric Supply Co., treasurer, and Ted C. Brown, secretary-manager.

Members of the executive committee are J. S. Milligan, Milligan Oil Burner Co., Inc.; G. W. Ferling, C. C. C. and St. L. Railway Co.; C. E. Walton, Industrial Electric Co.; W. J. Morgan.

Eugene Wilder, E. G. Ralston, George Stalker, A. J. Callaway, R. C. Rottger, and O. F. Wadleigh.

CAMPAIGN FORERUNNER

CHARLOTTE, N. C.—Forerunner of its annual Kelvinator sales campaign is the Southern Public Utilities Co.'s series of electrical kitchen demonstrations, now being conducted in its various branches by Mrs. D. M. Fleming.

Conard Studio Purchases Double-Purpose Truck

WICHITA, Kan.—A combination refrigerator delivery and public address truck is now being used by the Conard Studio, Majestic dealer of Garden City, Kan., according to announcement sent to the distributor in the area, the Sterling Radio Co. of this city.

A platform slides out from the back of the truck body providing a convenient method of hauling refrigerators, and eliminating the necessity of lifting the refrigerator up into the truck proper. The truck is on a Ford chassis.

GIRL SCOUTS SEEK MERIT BADGES IN KITCHEN CARE

FULTON, N. Y.—Girl Scouts of Fulton are qualifying for dozens of merit badges in the use and care of kitchen equipment under the direction of Mrs. K. P. Dryer, director of the home service department, Fulton Light, Heat & Power Co.

Mrs. Dryer conducts special classes for the Girl Scout troupe on the use of electric ranges, refrigerators, mixers,

UTILITY CO. LAUNCHES LOAD BUILDING DRIVE

BERKELEY, Calif.—A load-building campaign by which it expects to increase its revenue during 1932 by \$7,816,829 has been launched by the Pacific Gas & Electric Co., serving northern and central California.

The quotas making up the total are: new electrical appliance business, \$3,600,380; new gas appliance business, \$2,471,500, and new combination gas and electric business, \$1,744,949.

To carry out the program, the company has approved a sales promotion budget of \$1,288,440, plus an advertising appropriation of \$300,000. It plans to create approximately \$6.30 worth of new business for every dollar expended on the program. The added kilowatt load, if the program succeeds, would be 191,097.

NAMED DEPARTMENT HEAD

LITTLE ROCK, Ark.—Guy H. Mathis, for the past five years associated with the W. P. Galloway Co., Frigidaire distributor for Arkansas, has been appointed manager of the Frigidaire department of Pfeifer Bros., here.

G. E. Owner Tests Box at Home

GLENDALE, N. Y.—A General Electric refrigerator user with a liking for research is William A. Hegemiller, 7862 80th St., here, who recently wrote to Rex Cole, Inc., as follows:

"The writer has been the owner of a General Electric refrigerator since May, 1929, and thought you might be interested in knowing that he has had two lemons in the box since last August which are in the same condition now as when they were put in."

"These lemons have been kept in the box as an experiment since we all realize that lemons are known to dry up under almost any adverse circumstances. We would be glad to show them to anyone who doubts the performance of your refrigerator."

APPOINTED SALES MANAGER

ATLANTA—F. P. Sledge, formerly West End representative for the Crews Music Shoppe, Servel Hermetic dealer in this city, has been appointed sales manager of the East Atlanta Hardware Co., another Servel dealer.

LILIENTHAL OUTLINES COMMISSION'S DUTIES

MILWAUKEE—That the proper function of a state commission for the regulation of public utilities is not to sit as judge of evidence presented by contending parties, but to serve as "an aggressive, fact-finding body," was the statement of David E. Lilienthal, presenting the conception of the reorganized Wisconsin Public Service Commission as to how public utilities are to be regulated.

"I conceive of public utility regulation not as a job for judges," he said "but as an administrative task. It seems to me that it is the duty of a commissioner not merely to sit back and listen to complaints, but to keep an active, supervising eye on the operations of the public utilities under his jurisdiction.

Should Secure Facts

"When a commission finds from the filed reports and from other sources of information submitted to it that it is likely a public utility is charging an unreasonable rate, it should on its own motion order its staff to see that the facts are produced with respect to that company.

"On the other hand, if it finds that a utility is being unjustly treated in rates, then it should, regardless of public demand, decide that case on its facts and order rates increased. In other words, I conceive of the Public Service Commission as an aggressive, fact-finding body."

Investor To Be Considered

Mr. Lilienthal also expressed the belief that the commission's conception of public interest in utility regulation "must be comprehensive enough to include not only the public interest in your protection as consumers, but the public interest in the protection of the investor as well."

"These great and essential industries," he continued, "must above all other industries be stable and secure. Regulation of the kind we are trying to put into effect will, we believe, not only protect your interest as consumers, but, by eliminating the possibility of speculative excessive profits, will keep speculators out of this business and in other ways tend toward the stability of the public utility industry."

REFRIGERATORS EXHIBITED AT TEXAS COOKING SCHOOL

FT. WORTH, Tex.—Frigidaire, Kelvinator, Majestic, General Electric, and Westinghouse electric refrigerators were exhibited by local dealers at the Ft. Worth Star-Telegram's 19th annual cooking school, conducted by Mrs. Ida Chitwood from Feb. 15 to 19.

The J. P. Anderson Co. donated a model W-5 Frigidaire which was the grand prize in a drawing held the last day of the school. The General Electric Hotpoint Range used by Mrs. Chitwood in her classes was furnished by S. C. Griswold, Inc., General Electric dealer here, and was the first prize in a drawing held the fourth day of the school.

Other exhibitors were: Carroll Moore Co., Kelvinator; T. C. Jones and Radio Equipment Co. of Texas, Majestic refrigerators and radios; and Fakes & Co., Westinghouse.

NORGE EXHIBITS 'SKELETON' OF OPERATING MECHANISM

NEW YORK—The entire operating mechanism of a Norge electric refrigerator mounted on a skeleton set was part of the Norge booth display at the Real Estate Board Industrial Exposition held recently in the Empire State Building.

The show, sponsored by the National Real Estate Board, was the first of its kind, and was open only to those who had been consistent advertisers in the Real Estate Magazine.

UNIVERSAL RADIO CORP. ADDS TO CHAIN OF RETAIL STORES

PHILADELPHIA—The Universal Radio Corp. refrigeration division, with headquarters at 1321 Arch St., in this city, added to its chain of retail stores a store in Camden, N. J., last week.

The new retail outlet will carry the following seven lines of electric refrigerators, the first three being newly added to the firm's merchandise: Gibson, Leonard, Kelvinator, Copeland, Mayflower, Norge, and Majestic.

DAIRY MANAGER NAMED FRIGIDAIRE DISTRIBUTOR

PORTLAND, Ore.—H. A. West, former manager of the Red Rock dairy, has been appointed West Side distributor for Frigidaire. His store was opened at 10th and Washington Sts., Feb. 10, with a line of household models.

The company will be known as the H. A. West Co. E. U. League, formerly with the Fields Motor Car Co., has been appointed sales manager.

Copeland

FOR FINEST ELECTRICAL REFRIGERATION

COPELAND PRODUCTS, Inc., Mt. Clemens, Mich.

Please send me details of your specialized dealer plan.

Name _____

Firm Name _____

Address _____

POST-MORTEMS of 1937



“Your insistence on quality put us at the top”

“As you know, Mr. Weatherby, some of the board complained because we didn't go in for a cheap job at the outset. They felt we were missing an opportunity for a quick clean-up while the electric refrigerator industry was new. Even our own sales force complained bitterly, and I took it on the chin because I was sales manager then, you know. But I want to tell you that I'm certainly glad you kept a firm hand on the production policies and insisted on a quality job right from the start.”

“Yes, Charlie, I think now, as I did then, that cutting corners for the sake of a few more cents profit or to meet competitive prices is an expedient only for the moment. In the long run it only gets you in trouble. Here we are, one of only three companies that have paid dividends regularly since 1928—when we started. I am pretty sure that our dividends have totaled more per share than any of our competitors, except perhaps one.”

“That's probably true, Mr. Weatherby, and more than that, out of 25 or 30 important refrigerator manufacturers back in 1932 there are only about 10 in business today.”

“I am sure it was poor refrigerators that put them out of business, too, Charlie. Their salesmen were good. You know that. You've hired some of them. Their advertising was good. But their jobs didn't stay sold. Our engineering department was smarter than the sales department

there. They insisted, and I agreed with them, that saving a nickel here and a few cents there was merely cutting quality, not cutting costs in the best sense of the word.”

“Well, as chairman of the board, you can sit back and take it easy now, knowing that the policies of good quality and honest manufacturing and selling have put us pretty nearly at the top of the pile.”

In 1937 a few executives will look back over these hectic years of furious making and selling electric refrigerators and arrive at a similar conclusion—that in the long run quality is essential to leadership.

Today some manufacturers are looking ahead to 1937. They are deciding now where they want to be later and some are deciding, too, that consistent quality in motors—compressors—coils—steel—enamel—insulation will be a big factor in getting them.

That is why so many are specifying and using Dry-Zero Pliable Slab insulation. They know it gives assurance of long and efficient and economical refrigeration in America's kitchens. They know it adds a vitally important measure of quality to their refrigerators.

Dry-Zero Corporation, Merchandise Mart, Chicago. Canadian Office—465 Parliament St., Toronto.

Facts about Dry-Zero

Dry-Zero is made from the fibres of the huge seed pods of the Ceiba tree, growing in Java and the South Sea Islands. Nature designed these fibres to carry seeds for long distances through humid air and tropical showers. To do this, it was necessary that they be light and completely resistant to moisture.

By an ingenious process of “graining,” the fibres are laid parallel with each other, and at right angles to the line of heat flow. This results in greatly increasing the resistance to heat movement through the minutely uniform batt thus formed.

For use in refrigerators, the Dry-Zero batt is placed in treated fibre-board containers made exactly to fit a specified position in the refrigerator. These sizes are carefully checked by templates to assure perfect fitting, although the flexibility of the slab allows for common irregularities of cabinet construction.

The slabs are completely wrapped in a special Kraft paper, which has been thoroughly coated with an asphalt made specifically for Dry-Zero and rolled on under heat and pressure. This results in the Dry-Zero Sealed Slab, which has the most perfect vapor seal that has been developed in the insulation industry.

Where cabinet construction permits, the outer Dry-Zero sealing sheet extends beyond all sides of the slab, providing the exclusive vapor tight sealing flange.

The U. S. Bureau of Standards has published the conductivities of various insulating materials. In this table, the efficiency of Dry-Zero insulation is found to be from 12% to 40% higher than the other refrigerator insulating materials. Bear in mind that these figures are authentic and not the claims of manufacturers.

In other tests, for moisture absorption, notably by Prof. Miller of the University of Minnesota, Dry-Zero has been shown to absorb a far smaller quantity of moisture than any of the other leading materials. Further, as moisture will inevitably penetrate any refrigerator wall in time, it is well to know that it will have practically no effect on Dry-Zero, which is unique in this respect.

Its use in thousands of domestic refrigerators, ice cream cabinets, solid CO_2 containers, railroad refrigerator cars and refrigerated trucks over a long period has proved beyond doubt the permanence and dependability of Dry-Zero.

'Enlightened Self-interest' Major Lesson of Depression, Says Howard Blood

(Editor's Note—Maj. Howard Blood, president of Norge Corp., made the following comments on current business conditions in an interview over radio station WJR, Detroit, Feb. 10):

Mr. Moore: How is business, Mr. Blood?

Mr. Blood: Well, in answer to your highly important question, Mr. Moore, I would say, as one of the doctors, that our patient, business, is sitting up and taking a little nourishment.

Question: That is an interesting way to put it, Mr. Blood, and an illuminating and comforting answer. What makes you think that the patient is taking nourishment?

Answer: Well, the business reports are the most tangible thing. The efforts which the administration has approved and which are now going into effect is another. The evidences of returning confidence are another. And I would say that the willingness to face facts, find the remedies for the apparent flaws and apply them is still another.

On Way to Recovery

Question: Would you say we have touched bottom, Mr. Blood?

Answer: From everything I see and hear, I would say we have touched bottom and that we are on the way to consistent recovery.

Question: Do you think the Reconstruction Act and the anti-hoarding campaign undertaken at the request of President Hoover, will help?

Answer: Unquestionably, they will help. The Reconstruction Act has been so fully explained that I do not have to go into that, I know. Briefly, it means that no sound institution will have to close its doors and will result in a general stabilization of values at a more normal level—part way between the wild inflation of 1929 and the equally wild deflation of today.

Putting Money into Circulation

Question: From your own experience, how is business, Mr. Blood?

Answer: In my own experience, if we were inclined to live to ourselves alone, I would say there has been no depression. We have not experienced it—in fact, we did a larger business in 1931 than we did at the height of prosperity in 1929, and we expect to do an even greater business this year. Please understand that I am not indulging in any self-satisfaction because I want you and those listening to translate our better business into terms of men gainfully employed, who are putting their money into circulation and helping the entire situation.

Question: Yes, Mr. Blood, the success of the electric refrigeration industry has been one of the really amazing things of this depression, because when everybody else seemed to be slowing down, you went right ahead. How do you explain that?

Answer: Well, I could explain it by saying that our products offer tremendous values, but it is infinitely more important than that. The fact that electric refrigeration enjoyed such success is to my mind one of the most assuring factors in our present depression.

Question: Why is that, Mr. Blood?

Answer: Because it illustrates the one big factor that has been responsible for the success of this country.

Question: What was that?

Answer: It was, and is, a dissatisfaction with what we have and a strong desire to achieve continually to a higher standard of living. From its earliest days this country was never satisfied. It was always reaching out for better things. This was not only on the part of its great inventors, but on the part of its population. It is that ambition, desire and dissatisfaction with the imperfect that accounted for the demand for electric refrigeration.

Will Profit from Depression

Question: You don't think there is any danger of our becoming accustomed to present conditions? I ask that because in the history of the world, it has happened occasionally.

Answer: No, decidedly not. We may have lost a little momentum during the past two years, but the driving power is there just as it always has been.

Question: Some of the leaders I have interviewed, Mr. Blood, have said that they believed we would profit from this depression. Do you believe that?

Answer: I do believe that. However, that is not a great consolation to the men and women who are out of work today. We must have something more immediate for them.

Question: What do you think could be done that would bring about more immediate results than the application of the lessons of the past two years?

Answer: I believe that if the hoarded money was brought out, as President Hoover urges, and was put to profitable use, that it would result in a gain in employment and, of course, prosperity is based upon employment. If hoarded money is brought out and used to buy goods, the purchase of the goods helps to give the salesman a job, and also creates the necessity for or-

dering more goods. This, of course, put somebody to work. When people, because of fear, needlessly withhold purchasing and hoard money, they make depression worse. But I certainly subscribe to the belief of the gentlemen you have interviewed that many lessons of the past two years have been carefully learned and that the result will be a firmer, sounder prosperity in which all shall share.

Enlightened Self-interest'

Question: What are the most important of these lessons, Mr. Blood?

Answer: I think that the major lesson has been described as "enlightened self-interest."

Question: What does that mean exactly, Mr. Blood?

Answer: It means that the leaders are charged with the duty of assisting in the development of the capacities and powers of everything they control. We are beginning to understand that all gifts, whether of talent or wealth or position, carry with them the obligation of using them in the service of all with whom they are closely associated.

And in every industrial organization where these powers and duties are not recognized, an interruption to the progress and welfare of each individual has resulted, and in this loss the whole community has shared.

Fundamental Economic Law

Question: Is that an original belief, Mr. Blood?

Answer: Oh, certainly not. It is fundamental, and prior to 1929 was generally recognized that to refer to it became platitudinous. What I have said is merely part of the elementary economic law.

Question: Then you mean that an industrial order in which each seeks the good of all might be the answer to the present situation.

Answer: Yes, I think everyone believes that.

Question: Wouldn't that create an El Dorado or Utopia, Mr. Blood?

Answer: Well, not exactly, but since you mention Utopia and El Dorado, wasn't this country looked upon as both these perfect states rolled into one by hundreds of thousands of people who came here from abroad and, excepting for temporary recessions, hasn't it, to these hundreds of thousands, more than justified their belief?

Question: I would certainly say it has.

Answer: Please don't misunderstand me. We are not approaching the millennium yet by any means. So far we are only about half way, but we have arrived at the place where we recognize that "enlightened self-interest," common sense selfishness if you want, dictates that the other fellow must profit if we are to profit.

Question: Then, Mr. Blood, it would not matter which method we employed, whether idealistic brotherhood of man or selfishness, so long as everybody is prosperous and happy.

Answer: No, it wouldn't. We are interested in results and if we get the

results we should be satisfied so long as the method is not unworthy. We will get the results sooner because out of the experience of the past two years, there has emerged a supreme lesson that any method which endeavors to achieve its aim by methods which ignore the common welfare is working against the laws which produce progress. Naturally, you can't succeed for long working against these laws.

Will Discard Fallacies

Question: Then you think that we will discard many of our fallacies, while maintaining and enlarging upon most of our assets?

Answer: That is exactly what I do mean. Our whole aim has been to secure for the buyer the best and most reliable service that can be found. It is a method which concerns itself wholly in achieving this end and is constituted to encourage and reward, automatically, every effort which has for its aim the production of a better service to the public.

It gives free play to talent, welcoming every kind of individual enterprise, thereby encouraging the growth of that resourcefulness and ability on which this country has been built.

Question: I most emphatically agree with you on that Mr. Blood, and I don't think we will find any one who will disagree with you. One of the really fine things about the interviews it has been my pleasure to conduct in this series has been to recognize that hard headed men of practical business affairs, the heads of great industries, men who represent, as it were, living economics on the hoof, are so anxious to do what they can for the general good.

Mr. Blood: Well, I think that the leaders of business and industry do generally recognize that. The result, of course, is that the sound businesses today are much sounder than they ever were before and the unsound businesses which were unsound because they were not built properly, have gone out of business. This, of course, tends to tighten the whole structure and will undoubtedly be a safeguard against such drastic depressions in the future although, naturally we shall experience ups and downs—I hope they will not be so high up or so low down.

Actually, as I read the other day, the high road of business development is astonishingly straight and smooth in spite of the shifting crowd of old and new industries that travel it decade after decade.

Maps charting the growth of trade in this country over the last 80 years for which there are records show humps from year to year, occasionally a large detour, but through them, like a stretch of railroad track, runs the line of growth, scarcely swerving at all. Meantime, we are on the detour. The detour swung out for possibly a year and a half but it has started to swing in again. Soon it will touch the main road and it will be a new road.

It will be the old road so far as stretching back into the past is concerned, but a straighter road than before. It depends upon ourselves how well we shall use it. Certainly, the efforts of the administration will bear fruit and if we utilize them, those of us who can, to the very limit of our capacity and go ahead with confidence and courage, we shall soon get those who are suffering most back with us and go on to a more certain prosperity.

How To Sell Refrigerators

As Practiced By Colorado Public Service Co.

the summer. Mats from the General Electric Co. are used, tied up with local and national advertising.

The "Silent Hostess," General Electric refrigeration paper, is sent to users of electric appliances. This little paper contains coupons with which the reader may secure bridge score pads and other useful gifts merely by writing to the company.

"These slips are then sent to us," explained Mr. Brierley, "and we promptly make the rounds, asking whether the housewife has received her material, and at the same time endeavoring to learn the names of her friends who are interested in electric refrigeration."

Keep Buyer Sold

"It pays well to keep the buyer sold; and to that end we offer her every hint at our disposal for a wider use of her purchase."

With their monthly bills the company usually sends colorful advertising folders. Bill-boards are also used as a medium for advertising.

The Public Service Co. makes use of the Courier's annual "Ella Lehr" cooking school by lending a machine for its demonstration, and also holds its own cooking schools.

600 Attend School

"Last summer our daily attendance was about 600 women," said Mr. Brierley. "This campaign was primarily for the purpose of selling gas ranges, but the refrigerator came in for its share of the limelight. Forms were filled out by the guests and these we added to our prospect list."

"Besides the lunch served every woman present, a lucky name received a nest of Pyrex glassware, since this may be used in both oven and refrigerator.

"That even a small box educates users to year-round refrigeration is shown by the fact that our small machines are continually coming in to be exchanged for larger models."

"We are in business," Mr. Brierley summed up, "to sell electricity. We're selling it through every channel at our command."

DAMON HEADS EDMUNDSON CO. RANGE SALES STAFF

HOUSTON, Tex.—Arnold Damon has been appointed head of the new Hot-point electric range department of the Edmundson Refrigerating Corp., distributor of General Electric refrigerators and ranges. Mr. Damon has a sales force separate from that selling refrigerators.

The ranges will be retailed from these stores in Houston and one in Galveston. In addition, a key range dealer will be established in the principal cities of each of the 22 counties covered by the distributorship, with sub-dealers or sales agents in the smaller towns.

REFRIGERATION BOOSTS SALE OF BEVERAGES

OMAHA—Increase in carbonated beverage sales of 12 per cent is attributed to electric refrigeration by A. J. Hailey, manufacturer, of Ogallala, Nebr., according to a statement at the annual convention of the Nebraska Carbonated Beverage Manufacturers here recently.

Much of Mr. Hailey's product is sold in small trading posts in the western part of Nebraska. Electric refrigeration, owned by many of the farmers and ranchmen, made it possible for them to buy in 5- and 10-case lots.

GENERAL EQUIPMENT CO. GETS PRISON REFRIGERATION BID

SPOKANE, Wash.—The General Machinery Co. received the contract for a \$12,000 refrigerator plant at the United States penitentiary on McNeil's Island and is now installing the equipment.

E. J. Simons, manager of the company, also reports an order for a 50-ton refrigerating plant from Shanghai.

KELVINATOR DISTRIBUTOR SPONSORS SCHOOL

ALLIANCE, Ohio—Cope Electric Co., Kelvinator distributor for this district, sponsored a three-day cooking school and demonstration at its store in connection with the announcement of its appointment as direct factory outlet in this territory.

Cooking school sessions were held each afternoon, and all models of Kelvinator were exhibited.

BOWES APPOINTED MANAGER

BILOXI, Miss.—Frank E. Bowes of Shreveport, La., was recently appointed manager for the Southwestern Gas & Electric Co. on the Mississippi coast. He succeeds D. G. Skinner, who has been manager since 1917.



Salesmen and dealers of the Wiswell Radio Co., Chicago distributor for Kelvinator refrigerators, recently heard factory officials outline 1932 sales plans.

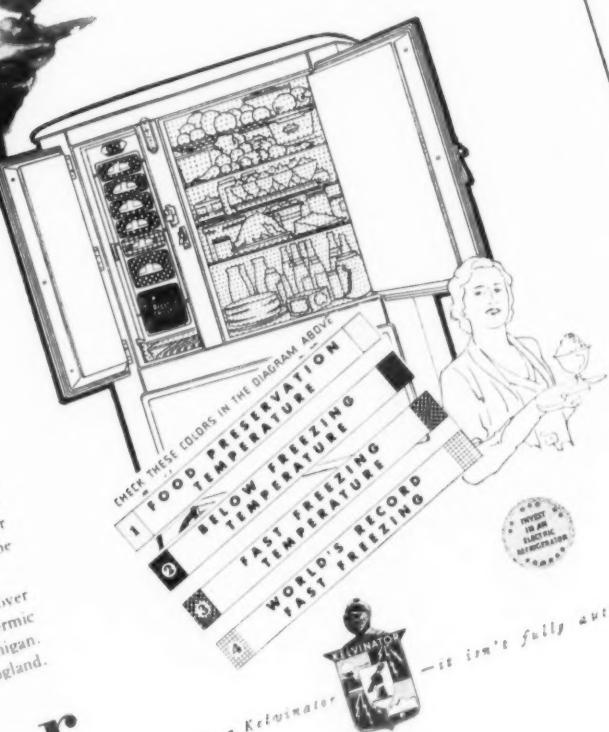
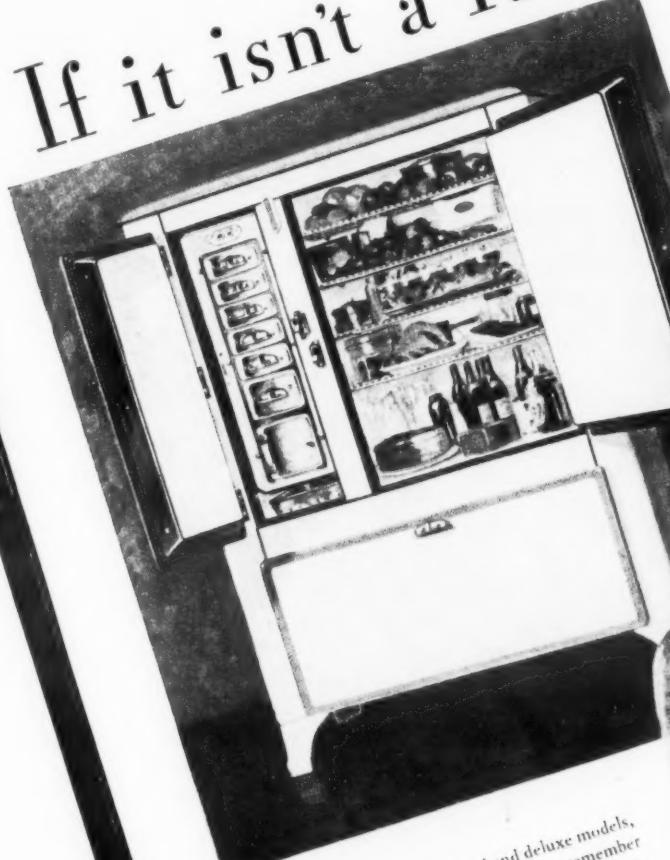
10,000,000 Homes Will Know-

THE SATURDAY EVENING POST

If it isn't a Kelvinator-it isn't

fully
automatic

Kelvinator alone has 4 different
constant temperatures in the
refrigerator at the same time—
each controlled automatically



IN KELVINATOR standard and deluxe models, there are no dials to set. Nothing to remember or forget. There is no danger of freezing the contents of the food compartment. Each of the four temperatures (not freezing speeds) is controlled automatically, without supervision or attention on your part. This fully automatic operation—and only Kelvinator has it—is made possible by Iso-Thermic Tubes, an engineering feature that was developed and is owned exclusively by Kelvinator.

This chart on the right explains the four automatic zones of cold. A safe food preservation temperature constantly below 50° is maintained in the food compartment. The Frost Chest, for keeping fish, meat or game, has a temperature that is always below freezing. The ice cube trays, indicated by the green, have an automatic fast freezing temperature. And in the fourth zone of cold is the World's Record Fast Freezing Speed for making frozen desserts and ice cubes in a hurry.

The Standard Rating Scale for Electric Refrigeration—a free copy of which will be mailed upon request or supplied by any Kelvinator dealer—emphasizes the importance of fully automatic operation, and at the same time points out 15 other demands that should be made if the purchaser of an electric refrigerator is to be sure that he has made the wisest choice.

In your search for a refrigerator that measures up to this Scale, you will discover that only Kelvinator can be fully automatic because Kelvinator alone has Iso-Thermic Tubes. Kelvinator Corporation, 14253 Plymouth Road, Detroit, Michigan. Kelvinator of Canada, Ltd., London, Ont. Kelvinator Limited, London, England.

Kelvinator

Look for your nearest Kelvinator Dealer in the Classified Section
of your Telephone Directory under "Refrigeration—Electric".

THIS and similar advertisements in full color now appear each month in the following national publications:

Saturday Evening Post, 2,912,000
Good Housekeeping - 1,893,000
McCall's Magazine - 2,601,000
Collier's Weekly - 2,330,000
Christian Herald - 220,000
9,956,000

IN national magazines alone, 9,956,000 readers are being told every month—"If it isn't a Kelvinator—it isn't fully automatic". This is in addition to the enormous volume of radio, newspaper, outdoor and trade paper advertising that will be done on both domestic and commercial Kelvinator electric refrigeration.

When once the truth about fully automatic operation and the four zones of cold is understood by the prospect, it is very difficult to sell him anything else, because they are the most important features an electric refriger-

ator can have. And, inasmuch as these are exclusive Kelvinator advantages, the buyer who wants them has to buy a Kelvinator to get them. The dealer who would like to have these selling advantages, backed by an enormous advertising and sales development campaign, sponsored by the oldest and largest exclusive manufacturer of electric refrigeration equipment, is requested to write for particulars.

KELVINATOR CORPORATION, 14245 Plymouth Road, Detroit, Mich.
Kelvinator of Canada, Ltd., London, Ontario Kelvinator Limited, London, England

1914

Kelvinator

(489)

1932

Shortage of Natural Ice Creates Market For Refrigeration, Mason Says

DETROIT—With a natural ice shortage like the one that has not been known since the mild winter of 1890 facing the country this year, a market for electric refrigeration will be opened up in rural communities depending on the natural ice crop, G. W. Mason, president of Kelvinator Corp., believes.

"Notwithstanding the availability of electric refrigeration there are still many rural communities all over this country which will depend on natural ice, cut in the winter time and stored for their use when the warm days come," Mr. Mason says.

Depend on Natural Ice

"Thousands of cottagers and campers in rural districts still place their dependence on natural ice. Manufactured ice is not available to many of these; hence the failing of the natural ice crop will bring a real problem to these communities."

Mr. Mason quoted Department of Commerce figures showing national delivery of natural ice to be 12,000,000 tons.

"The logical solution of the problem

for those who have depended on natural ice will be the adoption of electric refrigeration," he continues. "Electric power is available in about every rural community now and even the suburban cottages have it. New prospects will have no choice. Food cannot be protected without refrigeration."

Those old enough will recall that there was virtually no freezing weather in the winter of 1890, and scarcely any ice was cut. When summer came, the situation was serious. Even ice box refrigeration was in the early days of development. Food merchants had placed their dependence on the crop of natural ice, and the time came when they did not have enough of it to preserve their stocks of perishables from day to day.

"The natural ice famine of 1890 aroused attention to the artificial production of refrigeration," says Mr. Mason. "Artificial ice plants were established in the larger cities and gradually in smaller cities. With increased production the cost was reduced and manufacturers began to compete on an even basis with the vendors of natural ice."

OIL TARIFF WOULD INCREASE FUEL COST

WASHINGTON, D. C.—The proposed tariff or embargo on petroleum and petroleum products would add thirty million dollars a year to the fuel bill of oil burner users and approximately half a billion a year to all users of gasoline and petroleum products, Harry F. Tapp, executive secretary of the American Oil Burner Association told the House of Representatives Ways and Means Committee at a recent hearing.

"To impose such a burden on the oil burner industry, on industrial and commercial users of fuel oil and on home owners through the medium of an artificial increase in price is to make the users of oil fuel pay for the wasteful and destructive practices that are responsible for the condition with which the petroleum industry is faced."

"The oil burner industry is not responsible for the condition existing in the petroleum industry today," Mr. Tapp told the committee. "On the contrary, were it not for the increased use of fuel oil during the past 10 years, the petroleum industry would indeed be in a critical condition."

He explained that last year approxi-

A Train Sale

BUFFALO—Harold G. Rahn, refrigerator sales supervisor of Buffalo, Niagara and Eastern Power Corp., was travelling to Albany to attend a meeting, and was bored with the familiar train ride.

Looking about the train, he saw a fellow traveller from Buffalo, whom he knew only by sight, and struck up a conversation with him. In the course of the conversation, Mr. Rahn learned that his companion did not own a refrigerator.

When the train pulled into Albany, he shook hands with the now new owner of a General Electric refrigerator and wired Buffalo for immediate delivery.

mately 350,000,000 barrels of fuel oil were consumed in this country and more than 50,000,000 consumed for heating homes and commercial buildings.

"This oil is the by-product of refining operation," he continued. "If it is not used as fuel, the problem of its disposal would be a serious one."

Today there are over 750,000 home owners of oil burners in this country, he pointed out, and these owners have invested more than \$25 million dollars in their oil burning equipment.

OIL BURNER MEETING PROGRAM ANNOUNCED

BOSTON—Announcement of the program for the ninth annual convention and show of the American Oil Burner Association to be held here April 11 to 16 shows the addition of two merchandising and one engineering session to the regularly scheduled meetings for manufacturers and dealers.

Approximately two months before the show is scheduled to open, 59 exhibitors have contracted for 92 booths in Mechanics Hall. Association officials expect to sell out all the 115 booths on the main floor and have opened 40 additional spaces on the mezzanine floor for additional exhibitors.

The show formally opens at 7:30 p. m., Monday, April 11, and is open daily thereafter, afternoon and evening, for the week of the convention. The annual meeting for members at which new directors are elected will be held Tuesday morning and officers will be elected at the meeting of the new Board of Directors Thursday morning.

Open Meeting for Dealers

An open meeting for dealers is scheduled for Tuesday afternoon. The first merchandising session will take place Wednesday morning, to be followed by an engineering session on Thursday and the final merchandising session on Friday.

Speakers at the first merchandising session will include J. J. Spaulding, Jr., commercial and industrial sales engineer of the Preferred Utilities Co., Inc., who will speak on "The Commercial and Industrial Oil Burner Market." Walter F. Tant, president of the American Oil Burner Association, will speak briefly on "The Job Ahead," followed by a talk, "Sales Planning and Advertising," by Robert Tinsman, president of the Federal Advertising Agency, and another, "Salesmanship as a Profession," the speaker for which will be announced later.

President To Be in Charge

John H. McIlvaine, president of the McIlvaine Burner Corp., will preside as chairman at the engineering session. A talk on "The Domestic Hot Water Supply," will be made by Joseph R. Murphy, general sales manager of Taco Heaters, Inc., followed by a discussion of "Air Conditioning," by Esten Bolling, consulting engineer.

"How Oil Burner Dealers Can Profitably Merchandise Heating Specialties," will be the subject discussed by R. G. Bookhout, editor of the *Plumbing and Heating Contractors Trade Journal*. Prof. L. E. Seeley, of the Mason Laboratory, Sheffield Scientific School, Yale University, will give a "Technical Research Report."

Katharine Fisher on Program

The second of the merchandising sessions will have as chairman Lionel L. Jacobs, president, Electrol of New Jersey, Inc. Ralph P. Bristol, vice president of Babson's Statistical Organization, will speak on "Forging Ahead."

Katharine A. Fisher, director, Good Housekeeping Institute, will discuss "Selling Women on Heating and Cooking with Oil Fuel." R. M. Sherman, president of the Silent Glow Oil Burner Corp., is scheduled to speak on "The Place of the Distillate Burner in the Industry."

The entertainment program reaches its height on Thursday night with the annual banquet and ball in the Hotel Statler. The Hon. James W. Curley, mayor of Boston, will deliver the principal address at the banquet.

On the following night the dealer division of the association stages its own "Dealers' Frolic" with a dinner and entertainment.

CINCINNATI DISTRIBUTOR IS SELECTED FOR NORGE LINE

CINCINNATI—Ray P. Harten, president of the Harten-Knodel Distributing Co. of this city, has just announced that his firm has been appointed distributor of Norge refrigerators in southern Ohio, southeastern Indiana and northern Kentucky.

Zenith radio has been distributed by this concern for a number of years. Mark Lintner, an experienced Norge salesman, has been added to the firm's personnel as head of the refrigeration division.

HEAT MERCHANTISER TO BE KELVINATOR DISTRIBUTOR

KALAMAZOO, Mich.—Oakley and Oldfield, merchandiser of coal, fuel oil and oil burners, here, for the last 32 years, has been appointed distributor for Kelvinator electric refrigerators.

A new store in the State Theatre Bldg. has been leased for Kelvinator headquarters. A. B. Teal will be in charge of wholesale operations; Gordon Curry will manage domestic sales, and J. E. Carey, commercial sales. Mrs. Anna Woldendorp will have charge of the home economics department.

Are you organized for PROFITS?



The peak season of 1932 is not far away. Are you prepared to get your share of this business—with the right product, the right merchandising program?

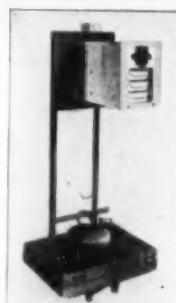
In 1930 electric refrigeration sales showed an increase. Again last year the industry enjoyed the greatest success in history. Yet, the potential market for electric refrigeration has scarcely been scratched. The saturation point of this market is still many years away.

1932 can be the best business year you've ever had. But you must have the right product. The Servel Hermetic incorporates the most advanced principles in refrigeration engineering—to give you and your customers Simplified Refrigeration.

Your sales work must be organized! Our aggressive sales program is now ready for you. Now the peak season is at hand—and the next four months must set your pace. A complete series of Dealer Helps will increase the effectiveness of your local sales work—



Here is the highly simplified refrigerating unit built in one rigid piece. The few necessary moving parts are hermetically sealed in the lower portion and placed out of sight—out of the way in the base of the cabinet.



reduce your sales costs to a new low figure—simplify your whole operation.

We offer you strong factory backing—a sound merchandising and sales plan and a product that sells!

Don't wait until it's too late—write now for full details of our attractive dealer proposition.

SERVEL SALES, INC., Evansville, Indiana
Makers of a complete line of household and commercial refrigeration

SERVEL
HERMETIC
Simplified Refrigeration

No kitchen repairs, intricate adjustments, or replacement of parts... fewer moving parts and none exposed... clean, quiet and economical... compact cabinets with maximum food storage capacity... no installation problem in any building.



BUSINESS IS GOOD!

with dealers who display the

Westinghouse

Dual-automatic Refrigerators

Just ask any Westinghouse Dealer. He'll tell you that never in his business experience has he been able to tell so forceful a feature story . . . has he had so great an opportunity . . . as the Westinghouse *Dual-automatic* Refrigerator offers him today. He's enthusiastic about business and profit in 1932!

Sales have increased. Profits have increased. Business is GOOD!

And the Westinghouse organization is backing up its Dealers 100% with effective merchandising plans . . . striking direct mail . . . compelling advertising . . . interest-arousing window displays . . . and dealer helps of all kinds.

Investigate! You'll find that Westinghouse *Dual-automatic* refrigeration offers you your BIG opportunity to cash in on a major portion of 1932 refrigeration sales. It is the *only* *Dual-automatic* refrigerator. It offers a complete line of household cabinet models . . . a complete line of beautiful water coolers . . . and a list of selling features that are EXCLUSIVE in the refrigeration industry.

Make it a point to hear the complete Westinghouse *Dual-automatic* story. Learn in detail about the Westinghouse franchise. It will pay you! Write, wire or telephone today!



OUTSTANDING AMONG REFRIGERATORS TODAY

Westinghouse is the *only* *Dual-automatic* refrigerator . . . the *only* refrigerator with Built-in Watchman control for extreme conditions and Selective Temperature control for ordinary conditions. It also offers an hermetically-sealed refrigerating unit and force draft cooling . . . unit-on-top advantages and completely concealed mechanism . . . buffet top and broom-high legs . . . all-porcelain interior and all-porcelain froster . . . commodious food space and flat, ribbon shelves . . . and many other dual-advantages.

THE WORLD'S MOST BEAUTIFUL WATER COOLERS

New Westinghouse Water Coolers are available in four models. One is for water supply lines, with bubbler and self-closing faucet. Another is portable for bottle supply. Other types have refrigerated lock compartments for bottled beverages. Every one of the models is in great demand and every one is a profit maker. Each is handsomely finished with aluminum strips and bright metal inlaid in the jet black *Micarta* sides. There is also an industrial cooler of attractive design.

'Utility Merchandising Local Problem Only,' Hodge Says

Executive Believes Local Cooperation Is Better Than Legislation

By William H. Hodge*

Vice President, Bylesby Engineering and Management Corp.

LEGISLATION to prohibit utility companies selling electric and gas household appliances is being advocated in many, if not all, states of the Union. This issue is opposed by the utilities on the ground that maximum public interest will be best served by means of cooperative planning and action among all interested retail agencies, in a manner that will divert a constantly increasing proportion of the business to non-utility outlets.

Human beings never had any civilization until they cooperated. Without cooperation there would be no governments, no schools, no churches, no business. As long as these institutions stand up it is self-evident that, although man is essentially a fighting animal, we have a large degree of practical, actual cooperation among one another.

The majority of Americans believe that voluntary cooperation is better than involuntary cooperation.

What our leaders and spokesmen really want is better cooperation and more cooperation in the particular industrial affairs in which they are engaged.

Have Not Studied Facts

They wish to carry the peaceful benefits of this cornerstone principle more fully into their everyday working lives in the belief that excessive strife is wasteful; that progress under the rules of good sense and fair play is the only progress that is really productive, and that in this way they will increase their efficiency in the service of their fellow men. They hope to extend still further down the line the first law of the intellectual universe.

Our reputable merchants and dealers are men of fairness and integrity. I do not question their sincerity, but in many places they have failed to see through the self-interested schemes of racketeers and near racketeers, and allowed themselves to be thoughtlessly imposed upon. Too often they have reached conclusions before they knew the facts regarding utility merchandising, and they have been prone to be influenced by unethical merchandising methods sometimes practiced here and there by the utilities in the past, but not approved or followed by the utilities generally.

Where well-founded criticism has existed the causes could be removed through direct conference in most cases, were it not for the interjection of some misinformed or self-interested individual.

Controversies Local in Nature

The very differences in the merchandising policies of utilities and the restricted business spheres of the merchants and dealers make controversies of this kind local in their nature. Each locality should handle and settle its own difficulties to its own satisfaction.

Instead of permitting difficulties to be dealt with in this simple and effective way, however, a great effort has been made to inflate these entirely local matters into state and national controversies—to make an issue upon which volumes may be written and spoken—in fact already have been—and destructive agitations carried on at the expense of the utilities, the merchants and dealers—and the almost forgotten public.

Public Opinion Not Tested

The public! After all, there is a public without which neither the utilities nor the merchants and dealers could exist. Not yet in any considerable locality has the question of utility merchandising been thoroughly debated before the court of public opinion. Not yet has the public either been seriously interested or thoroughly informed on the points at issue or awakened to how it is affected. In the two states which have adopted anti-utility merchandising laws—Kansas and Oklahoma—much was heard from the proponents, but little said by the utilities.

Regarding the Kansas anti-merchandising law, President M. M. Levand of the Wichita *Beacon*, says:

"The public utilities fell asleep and the bill was passed. They stood there amazed. They never had any idea that the bill was going over. If they had, they would have won the fight."

Substantially, this has been a private row up to date. If it actually gets into the public forum, as it promises to be for long, the possibilities may be rather surprising—as certain recent developments indicate in Kansas, to which I shall refer again.

Sales Liked by Utilities

It is but natural that the growth of sales of electrical appliances during the last few years merchants and dealers should wish to attract a larger proportion of the business to their stores. The utilities have no quarrel with this am-

*Address before commercial section, Great Lakes Division, National Electric Light Association, in Chicago, Feb. 18.

bition. The greater the number of successful retail outlets for high quality appliances, the better it is for the power and gas businesses.

The electric and gas companies are honestly and vigorously trying to develop and maintain cooperative efforts to accomplish this very thing. They believe that legislation cannot secure the object.

It does not follow the merchant will receive the appliance business previously done by the utility, or even as much as he has received before, if the utility steps out. Reliable information from the anti-utility merchandising states of Oklahoma and Kansas indicates that the independent merchant has not as yet greatly improved his position.

Makes Service Operative

Remove the force and stimulus of utility merchandising and you delete something in a community which apparently cannot be substituted at present from other sources.

Electric and gas services cannot be consummated without the operation of appliances by the consumer. It is just as logical for the utility to install electric appliances as it is for the telephone company to install telephone instruments in order to make its service operative.

However, the first is portable and subject to diverse treatment at the will of the user, and the other practically is not. One is comparatively inexpensive; the other calls for considerable expenditures. Except for these vital differences there is little doubt but that the introduction of electric service would have followed the same outline as the telephone—that is, the utility would own all the appliances and have to provide the entire investment.

Such was the practice in the early development of electric incandescent lighting. Therefore it is not strange that courts have ruled and franchises sometimes contained the provision that it is the obligation and duty of the utility to make proper appliances available for the purchase of the service consumer.

Interested in Quality

The utilities have a tremendous and rightful interest in the quality and efficiency of the appliances in the homes of their customers. If the appliance does not function properly the best standards of electric or gas service are powerless to make a satisfied user. The appliance is discarded, and the business is lost.

Potential injuries to life and health are involved with the use of electricity and gas. Safety to person and property should not be ignored. A major reason why the utilities wish to retain a degree of appliance distribution is to maintain the most effective means at their disposal to keep up the quality and safety standards of these devices. We believe that these objectives are in the interests of the public.

It is a mistake for anyone to assume that the utilities wish to monopolize the sale of appliances, or as a class, cannot be financially successful if the right to merchandise is taken away.

Practically all utilities would prefer not to deal in appliances if the public can be adequately served otherwise.

Will Slow Down Development

But we feel that such a general policy will inevitably slow down the pace of development, depreciate the quality and safety of appliances, lessen the building up of residential and rural service volume, and thus delay future rate reductions. It would be almost disastrous to further efforts to extend electricity to the farms. We believe that it would be certain to depress the appliance business as a whole and actually decrease and deteriorate the present and future markets of the independent merchant and dealer.

If the foregoing opinions are correct, and I firmly believe they are, the public interest, as well as the interests of independent merchants, dealers and utilities, will be seriously injured, not helped, by anti-utility legislation. Particularly is this true in the towns and rural districts, where many times the utility is the only possible agency for distribution.

A utility company must please many masters. It serves, and should serve, the entire public of any community. It cannot be a partisan in politics or economics without danger to itself. Such

an organization must serve all, must be fair to all, and because of its monopoly character, must not take sides as among customers, or classes of customers. In other words, common sense dictates that it walk the middle of the road and play a strictly neutral part in competitive and controversial matters.

In the present controversy, however, the utility is compelled to take a defensive position because it cannot do otherwise and avoid shirking what it conceives to be its plain duty to the public.

Nevertheless the utility has too much at stake as an industry to resist the present movement for anti-merchandising legislation beyond a certain point. It cannot afford to unduly jeopardize public good will, franchise requirements and the general sufferance allowing it to exist. In the event of prohibitive legislation it simply must do the best it can by indirect methods, in all probability considerably more expensive than those now employed.

Bookkeeping Errors

The argument that the apparent losses in utility merchandising represent an unfair burden—or any burden—on the service users cannot be sustained by analysis as a general rule. The practice of courts and commissions in fixing rates has been, with few exceptions, to deny the inclusion of actual merchandising losses in operating expenses.

As a matter of fact, these apparent losses usually are partly bookkeeping allocations, and are made up of three principal items, the first of which is regarded as desirable by all concerned. They are:

Promotional or development expenses for those appliances not yet sufficiently accepted by the public to avoid selling costs exceeding the margin between wholesale and retail prices; purchase and warehouse expense, display room rents, and other overhead on an arbitrary or pro-rata basis; interest on the capital employed in merchandising operations.

Keep Separate Accounts

Utility companies under Bylesby management for years have kept separate merchandising accounts, with all conceivable expense included. They include liberal purchase and warehouse expense allocations, although the warehouse and personnel have to be maintained in any event for construction material.

Most of these properties have apparent red ink merchandising balances, but if they cease merchandising a considerable part of the expenses now set up as red ink will remain and merely be shifted over to operating expenses as such, because offices and warehouses and most of their personnel must still be retained to carry on the main business.

Promotion Must Continue

Whether or not they merchandise, promotional or development expenses will remain if the public is to be fully served, and probably will cost more than before. These, too, will be frankly operating expenses, permitted by all laws and regulatory commissions.

One of the Bylesby managed companies is the Oklahoma Gas and Electric Co., which was legislated out of the appliance business last July. The company immediately organized a sales development department to cooperate with merchants and dealers towards keeping up the growth of residential and rural electricity usage.

The appropriation for this department is just about the same amount as was the apparent merchandising red ink balance, including six per cent interest, in a normal year. As an alleged merchandising loss the expenditure was severely criticized.

As a development expense to help other people sell appliances, it seems to be cordially approved.

Merchandising Loss Small

Disregarding interest, if the apparent merchandising loss were evenly apportioned among the 10,000 or so residential customers of this particular company, it would amount to about 60 cents a year each. That is, it would have meant that much to the average annual residential bill, if it had been charged up in this manner which, as a matter of fact, was not the case.

But owing to the growth of residential business as the result of combined merchandising effort on the part of the company, merchants, and dealers, the Oklahoma company has been reducing rates rapidly during the past few years and the customer profited to an extent many times 60 cents a year or five cents a month.

Last year alone his annual bill was reduced more than \$4—and expenses equivalent to the alleged former red ink balance are still being carried by the company.

Kansas Sentiment

I wish to direct attention again to the state of Kansas, and let Kansas citizens speak for me as to some phases of the actual working out of the anti-utility merchandising law in that state. This, of course, does not purport to be the full or complete story.

The Kansas Press Association and the

Kansas Editorial Association held a joint annual meeting in Wichita, Jan. 15-17, 1932. There was attendance of about 250 editors and publishers representing the daily and weekly newspapers of the state—men who are close to the people and know public sentiment in their own communities. On Jan. 16 the Kansas Press Association adopted the following resolution, it was reported, by a nearly unanimous vote:

"On the grounds of depriving cities and towns of adequate service and contributing to empty store rooms and unemployment, we urge the repeal of the law known as the 'utility merchandising act,' believing its operation has been a detriment rather than a benefit to communities."

Stores Closed Out

This resolution was preceded by a speech by Earl Fickert, editor of the Peabody *Gazette-Herald*, retiring secretary and member of the executive committee, who said:

"When House Bill No. 144, or what is known as the Utility Merchandising Law, went into effect last Aug. 1, two of the best stores in Peabody were forced out of business, and at the same time two of the best advertisers in town were eliminated."

"This will be nothing new to you because the same thing happened in your town as did in mine."

"During 1930 the electric and gas utility companies spent more than a thousand dollars for advertising space in my paper. During 1931, prior to Aug. 1, they spent \$400 for space, and since Aug. 1 both of them have used a grand total of \$4250 worth of space."

This loss of a thousand dollars per year is total because none of the other merchants now handling merchandise formerly sold by the utilities have increased their advertising budgets by reason of taking on the added lines.

"I have it from a reliable authority that the electric utilities alone used advertising space in Kansas newspapers during 1930 to the extent of \$250,000, to which could probably be added another \$100,000 of factory and distributor advertising, that is not now being used, while in other states where they do not have a law of this nature this kind of advertising is about 85 per cent normal."

"The result is a distinct slump in the sale of this kind of merchandise in Kansas. One utility company tells me that during 1930 they sold over 400 electric ranges in their territory, and in this same territory since last Aug. 1, five electric ranges have been sold by dealers now handling their sale."

Destroyed Volume of Business

"Who has benefited by the passage of the law? So far as I can learn, the chain stores are now selling 48 per cent of the appliances, department stores 15 per cent, specialty stores 12 per cent, contractors 15 per cent, battery and tire dealers 8 per cent, hardware stores 1 per cent, and furniture dealers 1 per cent. The business formerly held in the smaller towns by the utility companies is now going largely to the chain and department stores of the larger cities."

"In my estimation, this law has destroyed a large volume of business; it has thrown people out of employment—probably more than 200 in Kansas—it has closed up stores; it has deprived Kansas newspapers of more than \$300,000 in advertising revenue, and no one in Kansas has benefited to any material extent."

"I think it time the Kansas Press Association should take a definite stand on this matter and urge the repeal of the law by the Kansas legislature at its first session."

During one of the convention sessions a poll was taken unofficially on a small typewritten ballot as follows:

"What's your slant on the Kansas 'Utility Merchandising law'—Good or bad? Your name? Your paper?"

Sixty-eight of these expressions were turned in. Sixty-seven condemned the law. One favored it.

Chicago Paper Comments

Recently a Texas court ruled that the San Antonio Public Service Co. could not merchandise on the ground that such activities are beyond the scope of its Charter. Commenting, the Chicago *Journal of Commerce*, said:

"If the company's charter did not provide for the selling of appliances, certainly it should not sell them. But that is not any reason why other utilities in Texas should not continue to sell appliances, if their charters do allow them this right."

"And it is no reason at all for clearing the appliance business from the utilities which instituted it, developed it, and whose money, in many cases, brought the appliances into existence. This is one of the smoldering ill-wills that hard times have brought to a head."

"The utilities transact 30 per cent of the appliance business in the country—a business built up by themselves for extending their service. They believe that this ratio will eventually decline to 20 per cent; but they maintain that complete withdrawal from the business would cause a wholesale let down in the sales of appliances."

"Consequently the 100 per cent cap-

ture of the market—which belongs to the utilities to begin with—by protesting merchants and contractors would be less remunerative to the merchants than the 70 per cent, with the utilities getting the remaining 30 per cent and supplying the distributive force upon which the appliance business is built."

Organizes Cooperative Campaign

It may be well to inquire further into what actually happens when the utilities are forced out of merchandising. I have already stated that the Oklahoma Gas and Electric Co., serving Oklahoma City and a large number of other communities with electricity, had organized a sales development department to assist merchants and dealers in taking over the market.

This new department has been active since last July and during the pre-holiday season organized a cooperative dealers campaign to feature electric toasters, percolators and waffle irons. Every possible effort was made to interest merchants and dealers. A special sales school was held by the company. Large joint newspaper ads were run.

Sell 6,183 Units

The department succeeded in securing the participation of 101 stores in 11 communities. In the majority of towns sufficient dealer interest could not be aroused to make the effort worth while.

The campaign was considered a success. A total of 6,183 units were sold, amounting to \$27,746 retail sales value. Units were divided as follows: toasters, 1,896; percolators, 1,452; waffle irons, 2,835.

Accurate records were kept and a study of the division of business among the various kinds of stores is decidedly interesting. Results show how the different kinds of retail establishments fared relatively in the toaster-percolator-waffle iron drive.

Chains Get Business

These figures show that the chain and mail order stores, representing only 17 per cent of the stores participating, acquired more than 50 per cent of the unit volume, but that the merchandise sold was decidedly cheaper than that handled by the other outlets.

Department stores, representing but 9 per cent of the stores, sold about 20 per cent of unit volume at considerably higher prices, while a participation of 29 per cent electrical stores sold only 10 per cent of the units, but substantial prices brought up their revenue to a good figure.

Interesting indeed is the fact that hardware and furniture stores combined, representing about 19 per cent of total stores, sold but 6.5 per cent of unit volume. The hardware stores ran considerably better than the furniture stores, and their fairly high unit prices gave them a fair percentage of dollar volume. The furniture stores, it is apparent, did not do at all well.

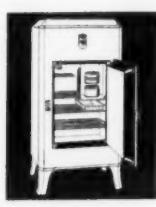
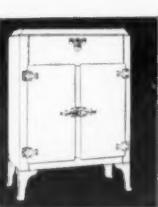
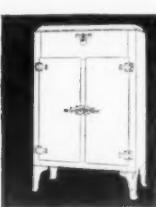
Did Not Increase Sales

It was the furniture and hardware people who figured prominently—at least were made to appear so—in the campaign which put the anti-merchandising act on the Oklahoma statute books.

These facts tend to sustain the utility opinion that putting the latter out of business will not necessarily increase the appliance sales of independent merchants and dealers; that the business will probably gravitate to the low priced items offered by the chain and mail order stores, and that in general there will be a reduction in price and quality of appliances not all acceptable to the ordinary merchant, dealer or utility company.

Will the independent merchant and dealer be better off under such circumstances?

By all means let us continue to work together as constructive citizens—to cooperate to the best of our ability towards the general good of our communities, states and nation.

Model 245
Shelf area—
9 $\frac{1}{4}$ square feetModel 255
Shelf area—
10 $\frac{1}{2}$ square feetModel 706
Shelf area—
12 $\frac{1}{2}$ square feetModel 275
Shelf area—
12 $\frac{1}{2}$ square feetModel 710
Shelf area—
18 $\frac{3}{4}$ square feetModel 712
Shelf area—
23 $\frac{1}{4}$ square feet

*This is a
Majestic
year*

**DeLuxe Models
at drastically
LOWER PRICES
assure it!**

Six Models \$159⁵⁰
to suit every need

F.O.B.
Factory

and up

You've expected it . . . looked forward to it . . . known it would happen. Majestic's modern, low-cost-production factories and world-famous production methods now bring the finest possible refrigeration within the easy reach of all. Millions of moderate-income families are a great new market now opened to Majestic outlets. Responsible, far-seeing dealers are taking up franchises rapidly . . . it is suggested that you see your Majestic distributor immediately.

GRIGSBY-GRUNOW COMPANY, CHICAGO,

and affiliates, with factories at Chicago, Toronto, London, Bridgeport, Oakland, and Sao Paulo, Brazil

**MADE BY THE MAKERS
OF MAJESTIC RADIO**

**MIGHTY
MONARCH
OF THE
ARCTIC**



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The Business Newspaper of the Refrigeration Industry

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Indoor Sport

IF ANY of our readers crave mental exercise we would suggest that they take up a new game which already has a considerable number of "fans" and which will probably become increasingly popular during the 1932 season. Our first impulse was to call this novel diversion "Refrigeration Statistics" but such a title would lack popular appeal. To be in keeping with indoor sport style the name should be short, euphonious, alliterative, hyphenated—like ping-pong, for example.

Aha! We have it. NEMA-NELA. There is a name which has all of the desired attributes. Furthermore, it is significant, for this couplet of coined words has an historical background in character with the game. In fact, two of the ardent proponents of the sport are representatives of the organizations known as Nema and Nela.

During the past few weeks a national tournament has been in progress—a sort of cross country foursome. Two of the players have operated from the Graybar building in New York City. The other two maintain headquarters in the Maccabees building, Detroit. The various moves have been made by letter, telegraph, and long-distance telephone. Excited fans, scattered in other cities, have been clamoring for a decision.

Rules of the Game

The first objective of the game is to determine how many electric refrigerators were sold in 1931. That is just a starter. If you get that far, you must then go back and figure out how many were sold each year since the beginning of the business. That gives you the *grand total*. Next, you must estimate how many were installed in homes and how many are still in use in the United States. Now you divide by the number of wired homes. Having done so, you yell "Saturation" and immediately call a stenographer, a Western Union messenger and long-distance operator.

According to the rules you must wire your grand total and percentage, transmit all calculations by mail and give your arguments by telephone. You may then take time out for lunch. Returning to the gaming table you find a telegram asserting that the grand total is off by 247½ refrigerators and that your percentage of saturation is way high by three decimal places. Going over your own figures you find two errors in subtraction and another in division so you start all over again.

What makes the game interesting, and interminable, is the fact that no one knows the correct answer and it is impossible to prove that your own figures are right or that the others are wrong. As with a game of cards, each player has a "hand" consisting of certain figures which he may know, or believe, to be correct. The difference is that no one ever gets to see all the cards or count the spots on them.

Refrigeration Statistics

The above literary effort comes forth as sort of a reaction to several hours of concentration on the problem of arriving at a final revision and interpretation of a mass of refrigeration statistics. Some of the preliminary estimates have been published in recent issues of the News. As new information has been secured and the data further

explored, corrections have been printed. Publication of the 1932 DIRECTORY and MARKET DATA Book has been delayed, regardless of the announced schedule, in order to include the complete data and the most nearly accurate figures available.

The statistical game referred to above is not entirely imaginary. Something of the kind has actually been going on. The four individuals are real in the person of Glenn Muffy of the Refrigeration Division, National Electrical Manufacturers Association (Nema), George Brown, Refrigeration manager of the National Electric Light Association (Nela), Stanley A. Dennis, statistical editor of the 1932 DIRECTORY, and F. M. Cockrell, publisher of ELECTRIC REFRIGERATION NEWS.

Confidential Information

Mr. Muffy has held certain "cards" in the form of figures furnished by each of the ten manufacturers who are members of the Nema Refrigeration Division. His detailed information is confidential and he can make known only the totals for the entire group. Mr. Cockrell has the figures of many other companies, also obtained on a confidential basis so that he can discuss only the totals. Mr. Brown has reports of public utility companies showing estimated sales in various geographical divisions of the country. Others who hold confidential information which can be contributed only in totals are Fred Nolde, executive secretary of the Refrigerating Machinery Association, Philadelphia, and C. F. E. Luce, executive secretary of the Commercial Refrigeration Manufacturers, Grand Rapids, Mich. Mr. Dennis has been endeavoring to piece together the parts and make a complete picture of the entire industry.

Centralized Service Needed

During the past year there has been a strong demand for production, sales and market data. No doubt the depression has focused attention of business men on ways and means of eliminating guess-work. Executives are anxious to secure the best possible information as a guide to their own operations and are quite willing to assist by making their own data available. The refrigeration industry is moving at a rapid pace and needs reliable guide posts.

The 1932 REFRIGERATION DIRECTORY and MARKET DATA Book, to be issued soon, will contain over 100 pages of statistical information with graphic charts and tabulations showing the development of the refrigeration industry year by year. Nothing like it has been available in the past. The book will answer a large share of the questions which have perplexed manufacturers, distributors and dealers.

The time and effort required to collect the data, however, emphasizes the need for one centralized bureau to collect all refrigeration statistics. Until all figures are received and analyzed at one point, it will be difficult to avoid duplications, omissions and inaccuracies.

GLEANINGS FROM RECENT PERIODICALS

AIR CONDITIONING MEANS "COLD" CONTROL

HERE is not much question that the prompt acceptance of electric refrigeration was as much a matter of comfort as it was of health through better food preservation. Getting rid of the iceman and getting rid of microbes were companion incentives. The surprising success of the program raises the question how the next venture will best succeed. Will air conditioning sell on the basis of health or of comfort?

The answer is both with comfort perhaps in the lead. But that is no reason why the health aspects should be ignored. A start should be made now to assemble the physiological evidence in favor of cleaned and humidified air. There will inevitably be a controversial period, but from it will emerge sound conceptions of germ reduction and cold control. Cold control has one meaning in refrigeration. Cold control in air conditioning language will come to mean the maintenance of an atmospheric condition of purity and moisture content which will cut to insignificant figures the economic loss and physical discomfort from "colds" and their sequels.

Some utility men believe that air conditioning will afford a receptive market long before there has come any standardization of methods for accomplishing it or any unity of purpose in fostering it. Hand in hand with the lagging mechanical and commercial development should therefore go a physiological campaign to convey the idea in terms of health.

The dream that air conditioning will provide the means of giving the home a California climate whatever the outdoor torridity of the summer may be can wait for its fulfillment until the more promising task of air purification and humidification in winter has become an accomplished fact.—*Electrical World*, February 13, 1932.

How To Diversify Your Business

By D. H. Pollitt, President,
Consolidated Industries Products, Ltd., Norge Corp. of Canada, Ltd.

EVERY specialty store has to take into consideration its relation to competition, its immediate locality, its limits of operation and the possibility of future development. Each case is, of course, an individual problem with, however, the same basic principles to consider.

There are three types of merchandise to consider in relation to the above problems:

1. Staple articles.
2. Trade-in business.
3. Specialty sales reasonably free from trade-in complications and having a follow-up sales value.

The exact correlation of these three divisions must be carefully watched in relation to local market requirements, potential and competitive agencies. They must be grouped or balanced in order that the greatest benefit may result. Each division has its function and can be correlated to advantage.

1. Staple Articles

This type of business encourages a flow of customers to the store, each of whom should be cultivated with a view to the other two divisions.

A good example is the record business in a music store. A customer buying a record, handled pleasantly and tactfully, should soon become a regular customer whose history can be easily obtained. As a music lover, the next step will possibly be a radio. His home circle will offer opportunities for other business, both in the trade-in and the specialty field. To build up a demand through the store for staple products will help to carry the burden of store operation. In most cases, staple articles can and should be operated to show a profit as well as attracting customers to the store who will prove in the final analysis to be very valuable assets to a specialty business. This is a distinct example of using diversification to widen your business horizon and dilute fixed charges and operating expenses.

2. Trade-in Business

"Trade-ins" must be made a servant to, not the master of, business.

This can only be achieved when the merchant is thoroughly alive to the third class of merchandise (specialties, free from a complicated trade-in situation). His major effort will lie in this class of business, not in a volume of poor trade-ins. Every opportunity to make a trade-in calls for the exercise of judgment and analysis on the part of the merchant. If his selection of merchandise is such that he is loaded with goods that fall into the poor trade-in class, his judgment is almost bound to be warped and he will be stamped into unsound allowances in order to get rid of merchandise. *Unconsciously, such a merchant is living in the fond hope that a large number of unprofitable transactions will bring him a profit—an impossible hypothesis.* Knowledge of the reason for new models will aid the specialty merchant to keep this situation in its proper perspective.

There are two reasons:

Because of scientific improvements that actually increase the utility of a product and frequently reduce its cost, thus increasing its appeal and market.

Because of re-styling, which not infrequently adds little to the utility, but merely to the eye value or the existing fashion appeal.

A specialty organization must have a thorough knowledge of the products handled. Such knowledge gives the merchant and his sales force the only weapon that will ensure sane judgment in arriving at a satisfactory agreement with the customer.

In spite of unfair trade-in offers, most people are still attracted by personality. An unfair offer can be combated by using the knowledge of the product under discussion, plus an obvious sincerity to make a really fair deal for all concerned. A prospect who is made to feel that he is sincerely wanted by the store as a regular customer and who hears an intelligent sales talk based on facts, is being inoculated against unfair trade-in tactics used by ill-informed competitors to unload merchandise at any cost.

To keep the trade-in business of a specialty store in its proper relation to the complete operation, the following points must be carefully considered.

The Customer. The normal customer will generally respond to an appeal based upon a sense of fair play. On no account show a weak approach to trade-ins. Have a firm policy and maintain it. The mere bargain hunter, taking advantage of trade-in possibilities, will cost money and eventually prove a loss. They should be absolutely avoided.

The Goods. Know the product being sold . . . thoroughly. All its advantages and value. Facts induce conviction. Size up the article offered as a trade-in fairly and squarely, its resale value, its

suitability. Make no deal which will load you with junk and eat away your profits.

The Principle. Have the principles of the trade-in situation firmly fixed in your mind. Point out to prospects that a \$10 cut outside of fair trading through an unsound trade-in is reflected in a lack of value somewhere in the transaction. Even if the merchandise is identical, an unsound cut from the dealer's profit affects the customer in a lack of future interest and service. The keen support and interest of a specialty merchant is always of benefit to the customer. Service and proper supervision "after" a sale has been made are worth many dollars to the purchaser of a specialty item.

This brings us to the consideration of the last group of merchandise . . .

3. Specialties

With little or no trade-in factor, but having a follow-up sales value.

Every specialty dealer should concentrate his main effort on a line of merchandise that has a growing acceptance with the public; one that offers an equitable profit margin and that is reasonably free from the crushing burden of unprofitable trade-ins.

A splendid example of such a line is electric refrigeration. Electric refrigeration in Canada has called for well directed, energetic sales power in the past. Slowly, the market is being filled up to the point of 10 per cent saturation, after which any time may bring that sudden flare of active desire on the part of the public which will bring a flood of refrigeration buying.

Modern, entirely free from parallel comparisons with its predecessor, the ice box, the electric refrigerator readily illustrates our point about specialty merchandise with little or no trade-in factor. It is desirable and efficient. The market has been but barely sampled, leaving a tremendous field for development. So great is the difference in the utility of the electric refrigerator and the ice box, that a prospect can recognize at once the difficulty of finding a resale market for the ice box. Thus, the ice box is antedated by a new product based on new scientific discoveries—a sound basis for a genuine sale. Having once sold an electric refrigerator of reputable make, the goodwill it creates in the home should strengthen the business ties between the dealer and his customer. The opportunity for calls to enquire if everything is working satisfactorily provides a logical re-entry into the home for the dealer or his salesman. The whole operation is clean cut, profitable and pleasant. It should be years before the trading in of one electric refrigerator for another becomes a factor.

Such merchandise as this merits the major position in the progressive dealer's business. Every man and woman in the organization should be made thoroughly conversant with such a line. No opportunity to introduce it should be missed, in or out of the store. Once selected as the spearhead for the building of profit, the whole organization should be made "refrigeration" conscious.

The wise specialty dealer will constantly survey the field for the next big development and then again venture forth with a new discovery, radical and at first possibly unwanted. In this connection it will be interesting to watch the future development of the automatic electric ironer which should eventually parallel the growth of the electric washer, over 500,000 of which are in use in Canada today. Incidentally, the electric ironer represents an ideal "follow up" sales possibility.

Thus we find the specialty dealer of today face to face with a splendid opportunity for sound growth and expansion through well organized complementary diversification which will keep every customer a live prospect and make every prospect a potential customer for a whole line of related electrical specialties.

Radio Trade Group Adds to Scope

MILWAUKEE—New articles of organization are being recorded by the Wisconsin Radio Trade Association to change its name to the Wisconsin Radio, Refrigeration & Appliance Association, according to W. D. Baker, executive secretary.

The Wisconsin organization is working with the national association in forming a code of business practices and a suggested code of advertising ethics to be applicable to the new merchandise divisions, Mr. Baker stated.

About 75 of the 100 members of the association in Wisconsin operate in Greater Milwaukee. It is pointed out that about three-fourths of the present radio dealers in the association handle electrical goods or refrigerators and that others are planning this expansion.

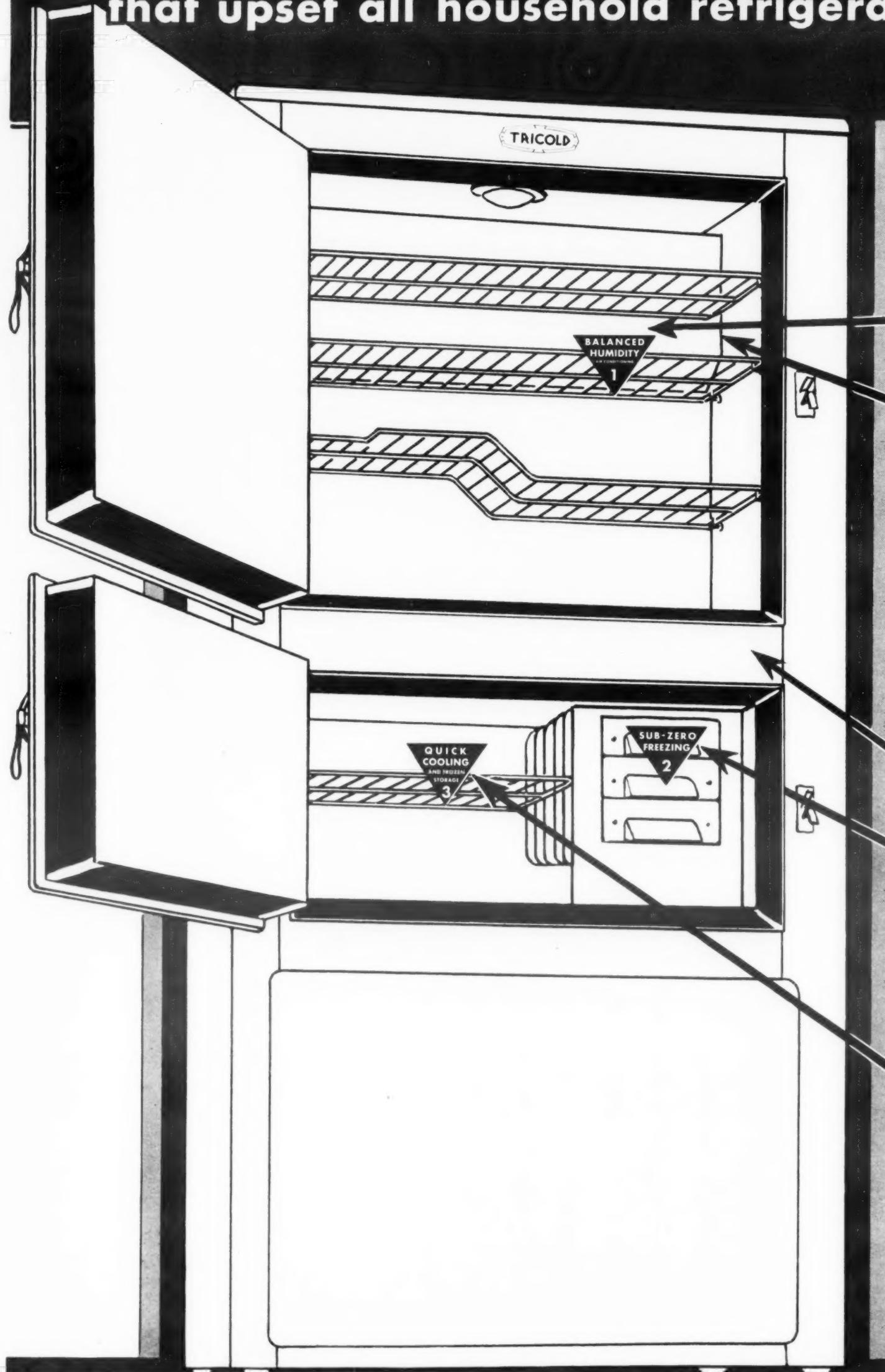
**DISTRIBUTORS
and
DEALERS**

**THE FOLLOWING PAGES
CARRY AN IMPORTANT
MESSAGE ADDRESSED
TO YOU**

THE
TRICOLD
REFRIGERATOR CORPORATION
296 DELAWARE AVE., BUFFALO, N.Y.

3 NEW

AND REVOLUTIONARY PRINCIPLES that upset all household refrigeration precedent



Here are the Revolutionary Patented Principles in TRICOLD Refrigerators...

The freezing unit has been taken from the general food storage compartment.

Back of this shield is a separate cooling coil that has two duties, namely to condition the air in the general food storage compartment and keep it at a sustained temperature of 40°. It is not obliged to freeze ice cubes or provide colder storage than 40°—the ideal temperature for food preservation. It is so designed as to always maintain a state of balanced humidity in this compartment. Thus, for the first time, is provided a household refrigerator that does not dehydrate foods. It keeps foods fresh days longer.

The general food storage compartment is completely insulated from the freezing unit.

Here is the sub-zero unit. Its extremely low freezing temperature (30° colder than others) has revolutionized dessert making in the home. Desserts frozen in this unit bear no resemblance in texture or taste to the same recipe when frozen at higher temperatures. Its speed is phenomenal. Ice cubes as fast as you need them.

Here is something new for the household, a large compartment for the quick cooling of hot pies, desserts, etc., for crisping salads, melons, cucumbers—also for the prolonged cold storage of food, game, fowl, meats, frozen foods, etc., automatically maintained at commercial cold storage temperature.

**BALANCED
HUMIDITY**
(AIR CONDITIONING)

1

TRICOLD
THE MOST POWERFUL SELLING WEAPON EVER
GIVEN DISTRIBUTORS and DEALERS!

**SUB-ZERO
FREEZING**

2

**QUICK
COOLING
AND FROZEN
STORAGE**

3

NOT one single radical improvement that can be interpreted in terms of better refrigeration has been made in household electric refrigeration in the past five years.

Add a manually operated temperature control—a rubber tray—a covered pan, most cleverly named by the advertising fraternity, and you have completely modernized the electric refrigerator of five or six years ago. Whether the machine is on the top or bottom, closed or exposed—whether a pump has three parts or four, contributes absolutely nothing in terms of better food preservation for the housewife.

Sales have been dependent upon fancy pictures—a clever play on words—and now, on slot machines. It was time for something to happen—and it has. To an industry ready for a definite step in advance, TRICOLD brings the first revolutionary improvement in refrigerating principles and results—a refrigerator as far ahead of present household electric refrigerators as the first electric refrigerators were in advance of the old fashioned ice boxes.

TRICOLD cannot be compared with any other household electric refrigerator, regardless of name, make, size, price or gadgets.

To understand the TRICOLD, you must first understand why household electric refrigeration got off to the wrong start. The electric refrigerator was an outgrowth of the old ice box—merely an artificial cake of ice called a freezing unit substituted for the ice cake. But, here's where the mistake was made. The old ice cake had only one job to do. As long as it kept food fairly cold, everybody was happy. When the mechanical cake of ice was substituted, it created an entirely new set of conditions, which were not recognized at the time—the desirability of low temperatures for making ice and frozen desserts—the necessity for avoiding temperatures destructive to food—the dehydrating action of dry cold—the utter impossibility of a constant temperature with the thermostat operated at the temperature of the freezing unit instead of the temperature in the cabinet. As a result, there developed a long list of conflicting requirements which were compromised by various expedients, all of which fall far short of producing the results that would be attained if such compromises were not necessary.

It was a foregone conclusion that someone would find the right solution—not by modifications of old principles—but by developing entirely new principles.

Study the picture of the TRICOLD. See how simple the solution was.

Like all things of revolutionary character, it immediately evokes the question, "Why didn't somebody think of that before?" What a simple thing it was to remove the freezing unit from the food storage compartment. Once that was done, all the other problems were easy to solve.

TRICOLD sets a pace that will be hard to follow—provides refrigerator distributors and dealers with the most powerful sales weapon ever placed in their hands.

TRICOOL™

BALANCED HUMIDITY

(AIR CONDITIONING)



SUB-ZERO FREEZING



QUICK COOLING and FROZEN STORAGE



NEW PRINCIPLES ARE APPARENT AT A GLANCE ...turns Shoppers into Buyers

KEEPS EVERYTHING FRESH DAYS LONGER



HERE is the general food storage compartment of the TRICOLD. With the freezing unit removed, proper air conditioning could be obtained. TRICOLD engineers recognize the fact that mere temperature alone is not sufficient for the proper preservation of fresh foods—that humidity is almost as vital a factor as temperature.

By drawing upon the full fund of modern commercial refrigeration experience, they provided, for household use, a general food storage compartment scientifically designed to give not only the right temperatures, but a proper balance of the moisture content . . . in other words, "Balanced Humidity".

The general food storage compartment of the TRICOLD is actually one big hydrating chamber. No special hydrating pans are required. The TRICOLD keeps everything fresh. Left overs, cheese, etc., that would dry out quickly in other refrigerators keep moist and appetizing days longer. The woman

who owns a TRICOLD can buy all the fresh vegetables she can carry home from market and keep them crisp and tender until used.

If you were to divide a bunch of fresh celery and place half in the TRICOLD and half in the regular food compartment of an ordinary refrigerator, after two weeks the celery in the TRICOLD would be just as fresh as the day it was put in, while the celery in the regular electric refrigerator would be dried out, days before.

There is no freezing unit to condense the moisture out of the air, consequently TRICOLD owners are never faced with the defrosting problem.

TRICOLD design provides a general food storage compartment that is one big unbroken space—every inch of which is available for food storage. This compartment is illuminated by a dome light that lights automatically when the door is opened. No detail has been overlooked.

MAKES DESSERTS WHILE PREPARING MEAL



THE TRICOLD sub-zero freezing unit has its own special insulated compartment. Sub-zero is not a clever catch word designed for advertising purposes. It is distinctly a new type of household freezing.

While freezing does take place at slightly below 32° F., it is extremely slow and impractical at such temperatures. This is why other refrigerators must have manual controls to attain a somewhat lower temperature. Some of these controls can be set for temperatures as low as 5 to 10 degrees above zero, but not for long periods without making the food storage compartment so cold that food is ruined—still without real freezing speed.

TRICOLD provides constant sub-zero temperatures, for freezing purposes. It makes ice cubes as fast as needed. TRICOLD provides the same temperatures

that ice cream manufacturers find essential for proper texture. Sub-zero freezing is so intense that it eliminates the need of full cream bases or gelatin and gives ice cream and frozen desserts a smoothness of texture that stands out in startling contrast to the same recipe made at higher temperatures.

Ice trays never stick in the TRICOLD because the freezing is so intense that it prevents the welding of metal to metal. No manually operated cold controls are required because TRICOLD sub-zero temperatures are automatically constant.

Another advantage of this intense cold is this: When moisture in the air condenses on this unit, it turns to snow—easily brushed off. No necessity to shut the machine down to de-ice—no more hot applications—no more ice picks.

PROVIDES QUICK COOLING... PRESERVES FOODS FOR MONTHS



AT THE LEFT of the sub-zero freezing unit is TRICOLD Quick Cooling and Frozen Storage—a new convenience, the necessity for which every housewife has felt a thousand times.

Any woman who has ever made a pie or dessert shortly before the meal will realize the importance of cooling it quickly, so that when the pie is served, it will not be hot and soggy, or the dessert warm and soft. She knows that salads are usually too warm to be served after she has mixed the ingredients and added her dressing, even though the materials had been previously chilled prior to using, that melons, cucumbers, etc., require "crispness". Ordinary refrigerators do not give her the cooling speed she requires. As a result, pies, desserts, salads, etc., are only too often served at improper temperatures.

The woman who owns a TRICOLD can put steaming hot pies right from the oven—hot dessert mixtures

—freshly made salads, etc., into the Quick Cooling and Frozen Storage compartment, of her TRICOLD and in twenty minutes, they will be cool, firm, crisp and appetizing.

What housewife has not felt the constant worry of advance planning of meals? TRICOLD eliminates much of this for with this new tool—Quick Cooling and Frozen Storage—she can improvise a meal at will.

TRICOLD Quick Cooling and Frozen Storage also makes it possible for the housewife to maintain an adequate supply of meats in frozen form. She can order her meat courses a week ahead or longer. The TRICOLD Quick Cooling and Frozen Storage Compartment is so big that it will perfectly preserve in frozen form for months, an ample supply of chickens, roasts, steaks, chops, etc.

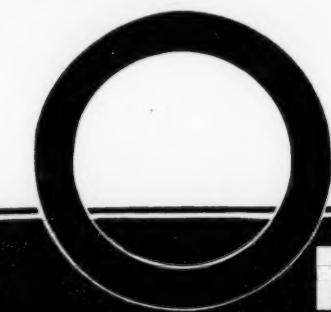
TRICOLD

The FIRST COMPLETE COLD STORAGE PLANT For the HOME

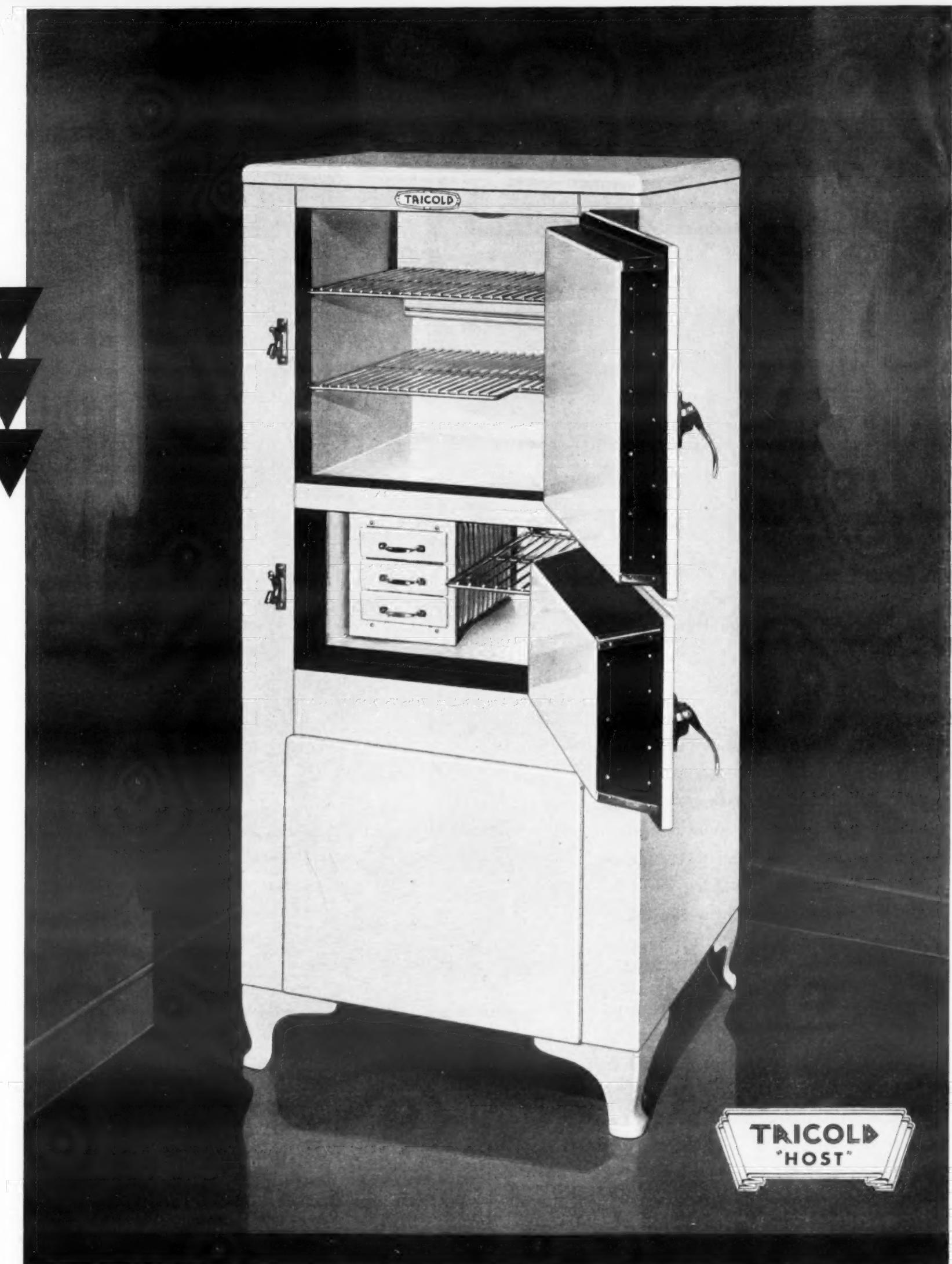


Capacity for
Larger Families
and Extensive
Entertaining

THE Imperial is all that its name suggests—a TRICOLD model of generous storage proportions to meet large home requirements. Space in general food storage compartment is not cut up with a freezing unit. **Insulation** Food Storage Compartment 3"; Insulation between upper and lower compartments 2". Quick Cooling and Frozen Storage Compartment 4". **Finish:** Exterior and interior seamless, white porcelain. **Hardware:** Special, extra heavy chromium bronze door catch and hinges. **Lighting:** Dome light in Food Storage Compartment. **Space Required:** Height: 70". Width: 36". Depth: 28".



OFFERS DISTRIBUTORS and DEALERS ONLY LINE THAT HAS NO COMPETITION



Capacity for
Average Families
and Usual
Entertaining

IN size and capacity, the Host meets to perfection the needs of the average home. Though slightly smaller in size, its general construction and mechanical detail are identical with those of the Imperial. **Insulation:** Food Storage Compartment 3"; Insulation between upper and lower compartments 2"; Quick Cooling and Frozen Storage Compartment 4". **Finish:** Exterior and interior, seamless, white porcelain. **Hardware:** Special, extra-heavy chromium bronze door catch and hinges. **Lighting:** Dome light in Food Storage Compartment. **Legs:** 5" high. **Space Required:** Height: 65". Width: 30". Depth: 28".

H

HERE'S HOW THE TRICOLD WORKS

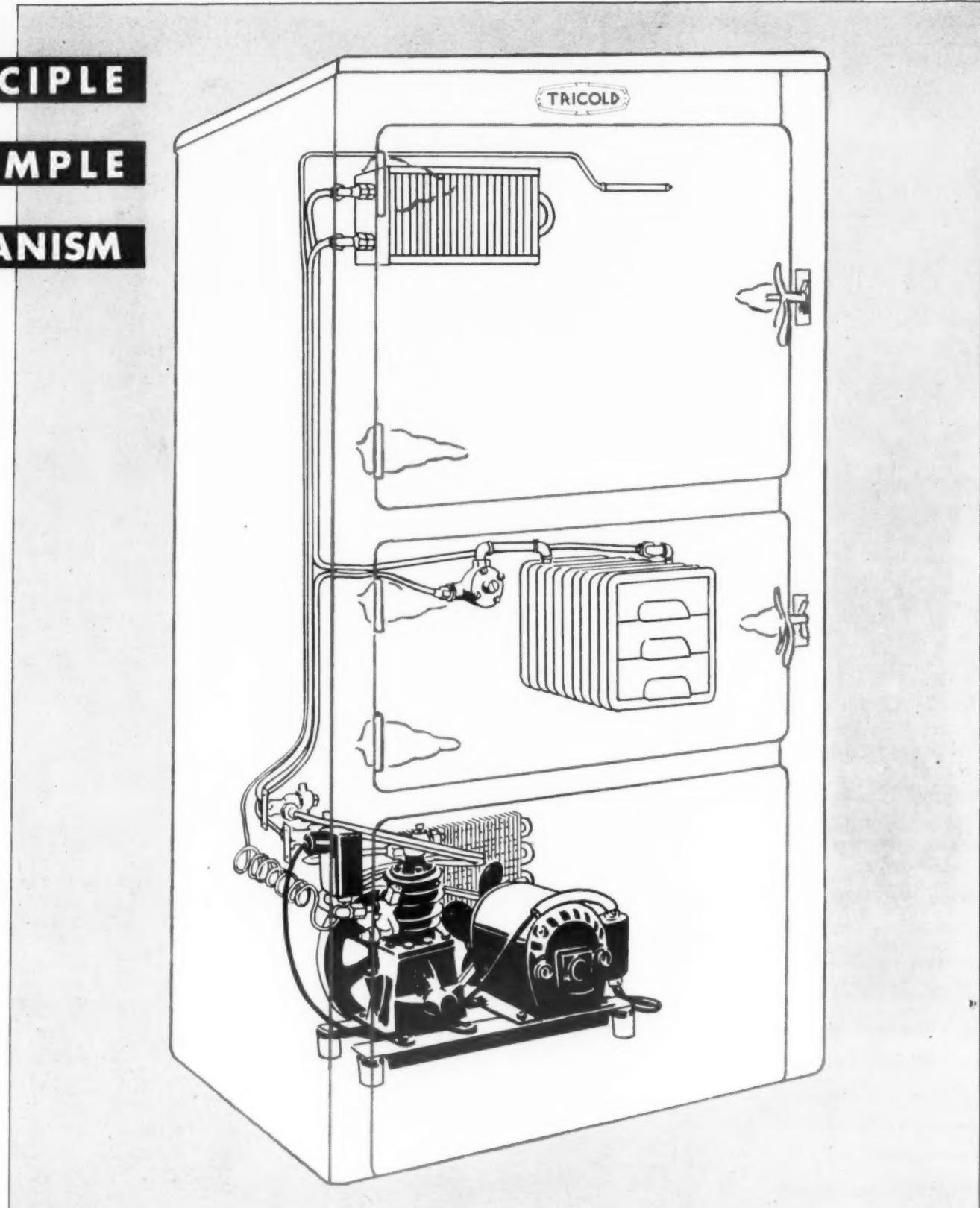
THE TRICOLD PRINCIPLE ENABLES USE OF SIMPLE REFRIGERATING MECHANISM

To those of a technical turn of mind, the simplified mechanics of the TRICOLD patented principle should prove exceptionally interesting.

The remarkable results obtained by TRICOLD Refrigeration have invariably lead experienced engineers to expect some new and complicated mechanism. Actually, TRICOLD is one of the simplest refrigerators, mechanically, in existence today. Not one mechanical complication has been added; in fact, TRICOLD, by dispensing with the manually operated temperature control reduces at least to that extent, the number of parts employed.

This simplicity is made perfectly clear on this page. There you will see a motor and compressor of standard design, a standard freezing unit, a standard expansion valve—and the same standard thermostat, all of which have been used for years.

The important difference between orthodox and TRICOLD mechanisms is the way in which these standard units are used. In the orthodox refrigerator, when the return line leaves the freezing unit it runs directly to the condensing unit. In the TRICOLD, instead of running the return line directly to



the condensing unit, it is first carried into the upper compartment, where it is coiled and finned to provide cooling for the food storage chamber. And then, it is returned to the condensing unit. There is no two temperature valve, there is no by-pass device, there is no multiple "hook-up".

This extreme simplicity is repeated in the functional process of the TRICOLD. When the food storage compartment requires refrigeration, the thermostat automatically starts the refrigerating process. As the refrigerant passes through the freezing unit

in the lower compartment, sufficient heat is drawn off to keep this coil at its sub-zero temperature. The surplus refrigerant then passes on and is utilized in the upper coil keeping the temperature of the food storage compartment at its proper 40° level. That is all there is to it.

You have never seen a simpler process of refrigeration. And to the user, TRICOLD's extreme simplicity in both mechanics and operation can mean but one thing—exceptionally carefree operation and low operating costs.



USERS enthuse over TRICOLD Performance

A prominent physician writes . . .

"Absolutely no dehydration of foods."

"There is absolutely no dehydration of foods. I left a dish of olives with no brine on them for ten days and they were as fresh, moist and unshrunken as the day they were left there. I can make frozen desserts and ice cubes in much less than an hour and keep the desserts indefinitely. No other cabinet that I have had experience with either direct or through my friends can approach this performance. I would not have any other cabinet even if the TRICOLD cabinet were three times as expensive and feel that anyone with the knowledge I now have of the cabinet would have no other."

Coffee Jobber says . . .

"TRICOLD keeps food indefinitely."

"We have found it (TRICOLD) more than satisfactory. This type of box makes it possible to keep food indefinitely. We have kept venison and berries for six weeks. Neighbors who have other makes of refrigerators bring their desserts over to have them frozen."

Grocer's neighbor finds TRICOLD far superior to his own electric refrigerator.

"It might be interesting to you to know that my neighbor who has one of the most popular nationally known and advertised machines, has asked to make and store her sherbet in our box, on several occasions. She said it would freeze her vegetables and fruits if she made her box cold enough to freeze sherbet. The first time we froze it for her, she stored it in her refrigerator and in a short time it was real soft and mushy and she brought it back for us to store for her in our TRICOLD."

TRICOLD makes more ice cubes than three other boxes for coffee shop proprietor.

"I am writing this to tell you how well pleased I am with the TRICOLD cabinet. It has accomplished the following results for me so far. It makes more ice cubes than the three other boxes I have and the ice is much colder. It furnishes a fine space for frozen meats and fish. And in my opinion a perfect storage for prepared salads and salad materials. I wish to thank your organization for selling me this box and when I can afford it, I will replace my other boxes with TRICOLD cabinets."

1855 SEVENTY-FIFTH ANNIVERSARY 1930
FOUNDED BY H. C. CRANE 1855

CRANE CO.

VALVES, FITTINGS, FABRICATED PIPE
HEATING AND PLUMBING MATERIAL
419 SECOND AVE. S.D.

"Stored twelve ducks for neighbor who has refrigerator of his own"

December 4, 1931

Tricold Refrigerator Corporation,
296 Delaware Avenue,
Buffalo, New York.

Gentlemen:

I had a very interesting experience which demonstrates more than ever the superiority of the Tricold three temperature cabinet over the old style one-compartment refrigerators.

A neighbor of mine was duck hunting on Nov. 17th and returned with fifteen ducks, so the question arose what to do with them. So he called me up and asked permission to put them in the cold storage compartment of my three temperature cabinet. He wrapped up twelve of them (feathers and all) in newspaper, making four packages, and we put them in the cold storage compartment on Nov. 18th and they are still there frozen stiff. How long he will leave them there I don't know - probably until Christmas or New Years. But the funny part of it is he has a refrigerator of his own; it has only one compartment and carries a temperature of 40°. against my cold storage compartment of 10° above Zero. Mrs. Blair asked me the other evening if we were operating a cold storage plant for the whole neighborhood.

Very sincerely yours,

J. B. Blair

OLYMPIC FURNITURE MFG. CO.

Tables - Breakfast Sets - Cribs

SALMON BAY TERMINAL

"Buy all fresh vegetables we want and keep until used up"

Tricold Refrigerator Corporation,
296 Delaware Avenue,
Buffalo, New York.

Gentlemen:

I have had my three temperature refrigerator for nearly three months now and I know you will be interested in knowing our experience with it. I say "our" experience, because it is Mrs. McChesney who is getting the big "bang" out of it. I expected it to freeze faster and to keep food longer than our old machine, which you know was one of the best makes, but did not know how much room for improvements there was.

One evening when I came home she informed me that we might have to wait awhile before we could eat the ice cream which she had prepared for supper because she had put it in to freeze in the middle of the afternoon to make sure that it would be frozen, and had forgotten to look at it until she started supper and found it froze as hard as ice. She put it up in the food compartment then and by the time we were through supper it was ready to eat. This experience got her interested for the next night we had ice cream again. She put in the 1 1/2 quart pan full this time when she put the potatoes on to cook and by the time we had finished supper it was just right. She also had filled one of the ice trays about half full and watched it to see just how long it would take. She said it was just ready to eat in 15 minutes so she put it in the cold storage compartment and when I came home called my attention to the fine texture of the cream. We never could make cream like that in the old box.

The thing, though, that I think we appreciate most, is the fine way we can keep fresh vegetables crisp and tender. Of course, we used to keep a stalk of celery and a few leaves of lettuce in the hydrator pan, but to keep two or three heads of lettuce, a head of cabbage, a couple of stalks of celery and enough spinach for a family of seven, - well, it just couldn't be done. Now we go down to the market and buy all the fresh vegetables we can carry and we keep them in the Tricold until they are used up. We often have lettuce two or three weeks after we bring it home. We never throw anything away. Just the other day, Mrs. McChesney asked me how the spinach tasted and I had to admit it was as good as any I had ever eaten, and she told me that it had been in the Tricold just a week and that before she could hardly keep it over night.

We have also discovered that the cold storage compartment is a wonderful place to "crisp" melons, cucumbers etc. Take it all around the least I can say is that we get a lot of satisfaction out of our three temperature cabinet and it is certainly all you claimed for it and more.

Sincerely,

D. A. McChesney

CHILLDARE

WORTHY COMPANION



SPECIFICATIONS CHILLDARE MODEL CL-52

Capacity Net Cubic Feet, 4.87
 Shelf Area Square Feet, 11.22
 Number of Ice Cubes, 84
 Number of Trays, 3
 Lbs. of Ice Per Freezing, 6
 Exterior Finish, Lacquer
 Interior Finish, Porcelain
 Hardware, Satin Finish Chromium plated
 Number inches of Insulation, 3
 Insulation Material, Balsam Wool
 Height, 58 $\frac{3}{8}$ ", broom high legs.
 Width, 28 $\frac{1}{2}$ "
 Depth, 22 $\frac{5}{8}$ "
 Equipped with temperature control and defrosting switch, Refresho pan, one rubber ice tray, glass chilling tray.
 See page 24 for specifications of Models CL-42 (4.05 net cubic feet), CL-62 (6.17 net cubic feet), CL-82 (7.90 net cubic feet).

LINE TO TRICOLD

Gives Distributors and Dealers A Quality Line That Meets All Competition



WE'VE told you the sensational story of TRICOLD. We propose to make you think regarding your position—past, present and future in the business of refrigeration.

We've pointed out the epochal opportunity which TRICOLD brings distributors and dealers for sales to refrigerator buyers in the quality field.

Now to cap the climax, we bring you CHILLDARE—running mate to TRICOLD. Just as TRICOLD is sensational from the standpoint of refrigeration results, CHILLDARE is a sensation in Value. By actual measurements, by actual performance standards in dollar for dollars worth, it excels every orthodox type of refrigerator on the market today.

Half a million people will buy refrigerators this year in the TRICOLD price class. Another half million people will buy refrigerators this year in the CHILLDARE price class. With CHILLDARE'S visible extra-quality and CHILLDARE'S low price, you are in an enviable position to get the business of this latter group of buyers.

Just as TRICOLD performance corrals the higher priced business, CHILLDARE quality will clinch the sales to those people who through preference or necessity are limited to a refrigerator in the lower price field.

From the standpoint of sales strategy, too, CHILLDARE is worth its weight in gold as a companion line to TRICOLD. If you know merchandising you can appreciate the full potency of this double hook-up.

TRICOLD is the magnet that will draw people into the store. It is the only refrigerator with sensational new features—a refrigerator that is so different in principles and results that everyone will want to see it before they buy any kind of refrigerator.

TRICOLD will bring them in—and when they come, the TRICOLD-CHILLDARE dealer has a double opportunity to sell them. TRICOLD with its companion line CHILLDARE, gives him a complete line with which to meet all competition.

Every woman will want a TRICOLD but for those who must keep within certain price limits, the TRICOLD-CHILLDARE dealer has another powerful weapon in CHILLDARE—the greatest values in the industry in standard refrigerators.

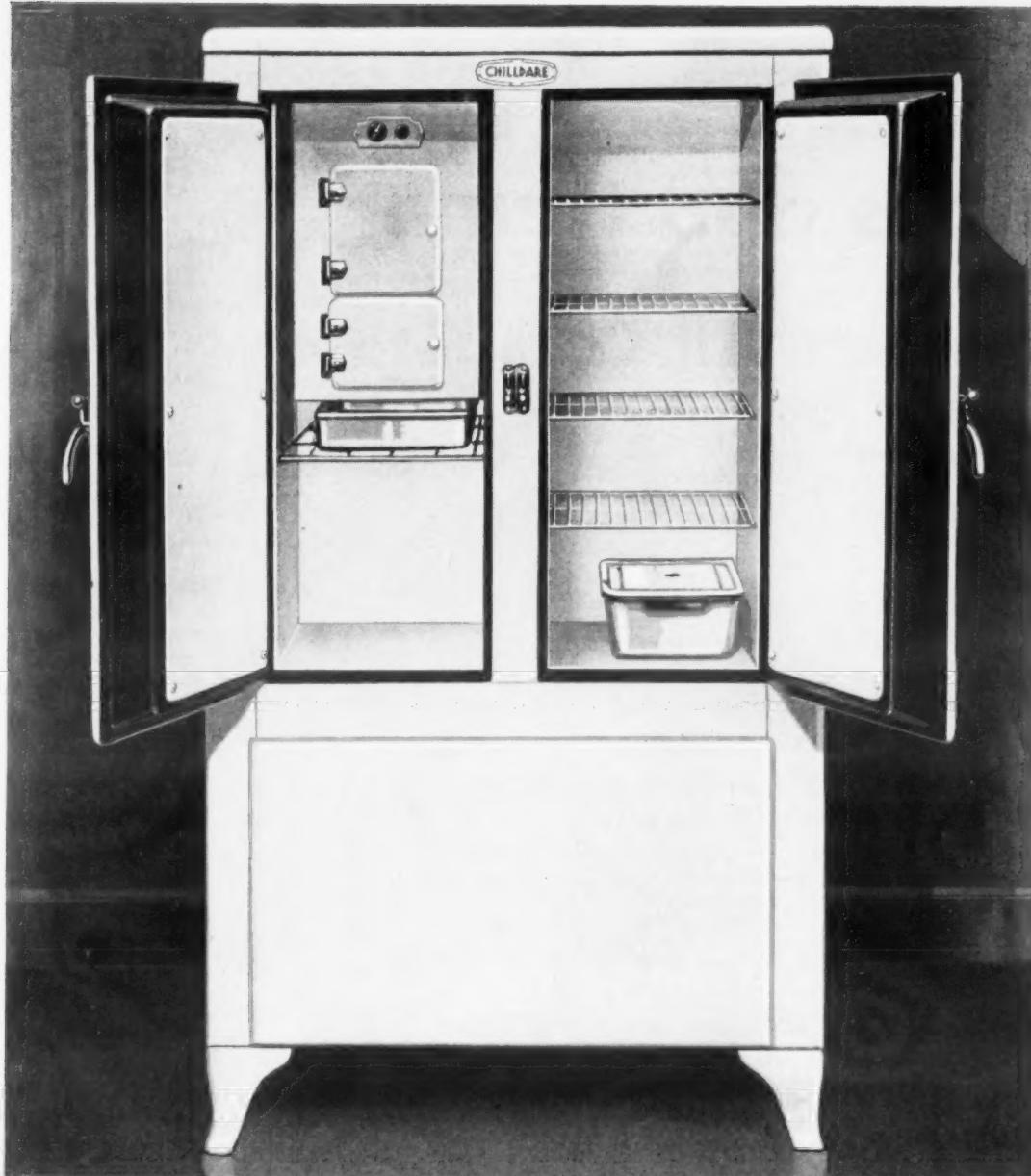
When you show her the CHILLDARE—better built and priced at considerably less than nationally known refrigerators that are regarded as standard of value, you will show her a refrigerator that she will come back to buy, no matter how much she looks around or shops.

TRICOLD and CHILLDARE constitute the biggest merchandising achievement in the industry—TRICOLD, the only refrigerator with features so revolutionary that it will bring every refrigerator prospect to the TRICOLD-CHILLDARE dealer's store and give him a monopoly of the quality business . . . CHILLDARE, the greatest value in standard refrigerators that will sweep all competition before it.

CHILDDARE

REFRIGERATORS—ARE BETTER BUILT THROUGHOUT

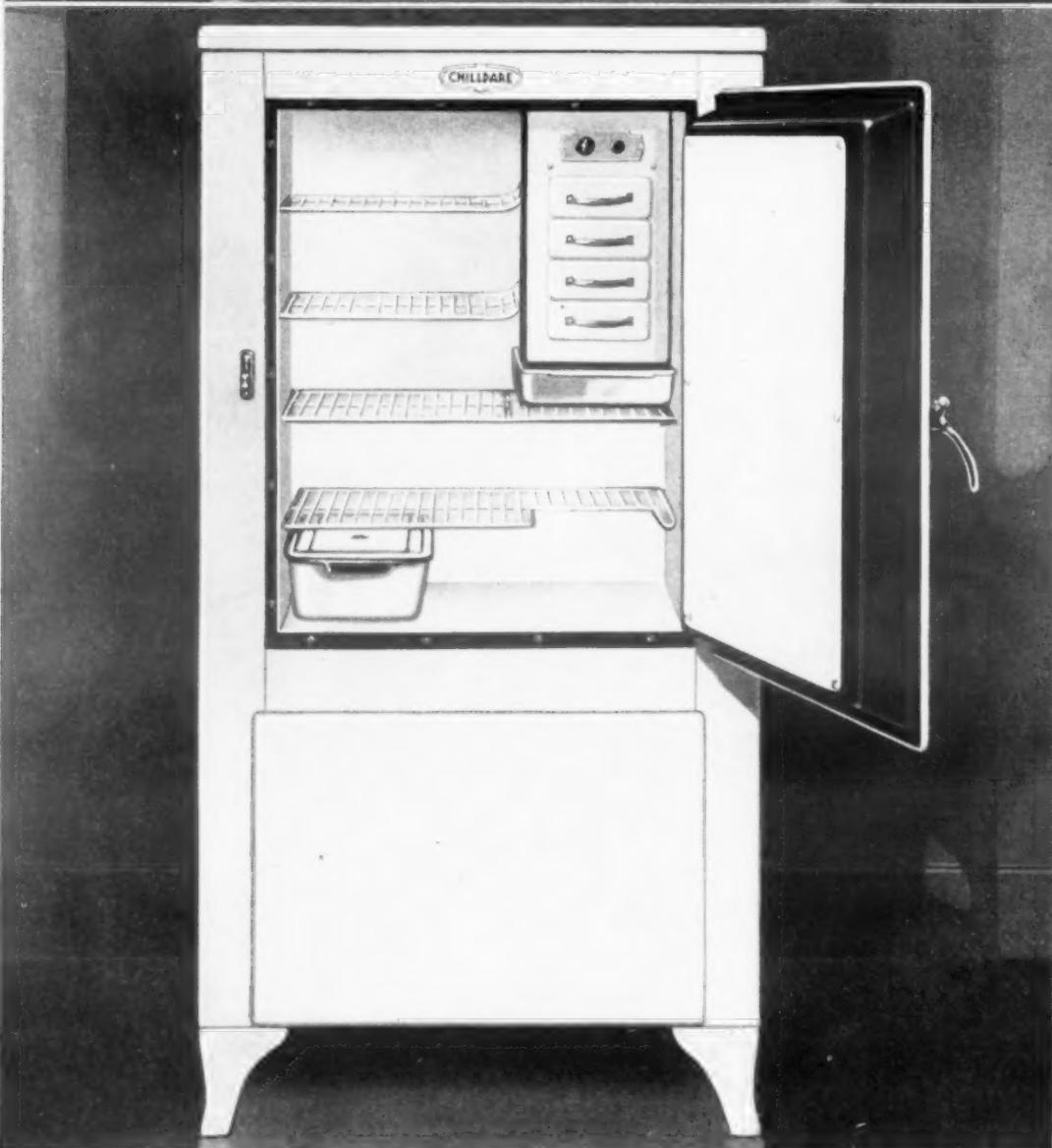
MODEL No. CL-82



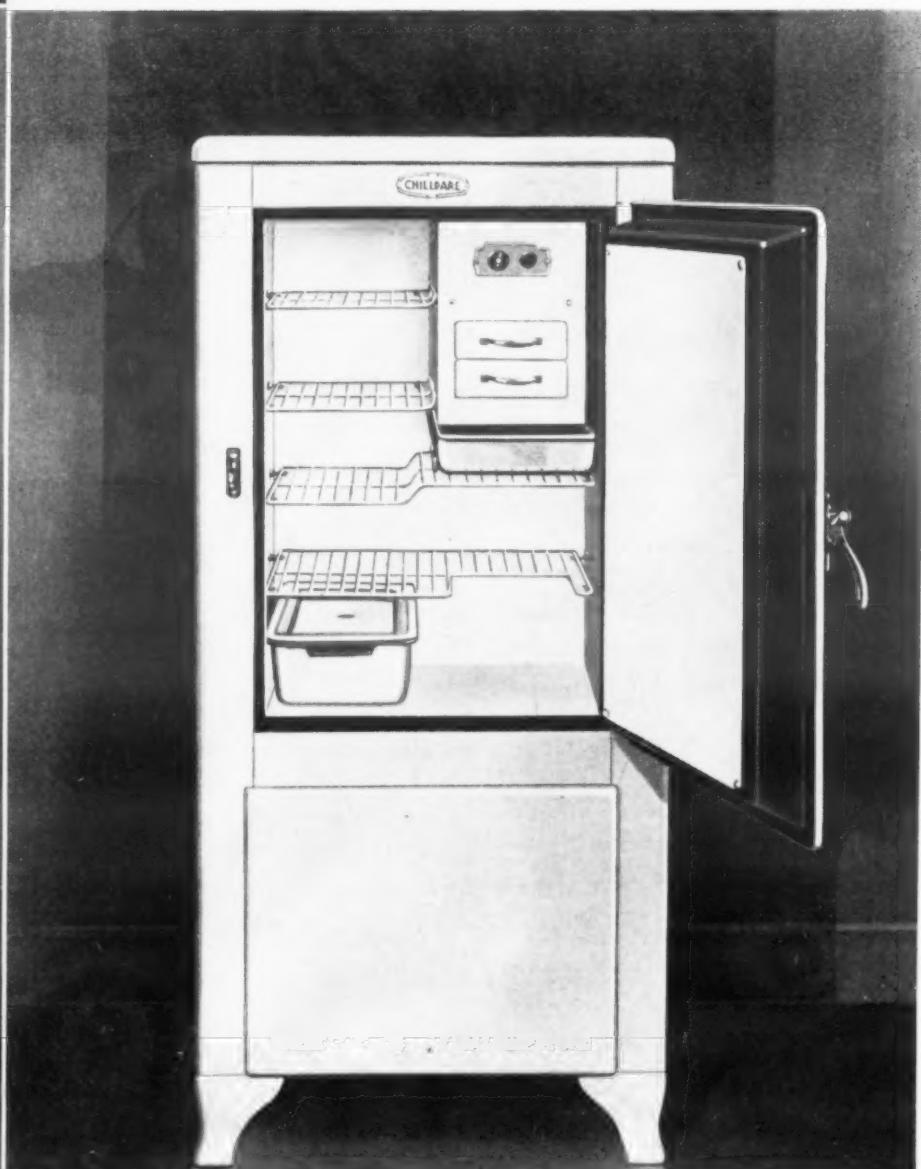
SPECIFICATIONS CHILDDARE

	Model Number CL-42	Model Number CL-52 Illustrated on page 22	Model Number CL-62	Model Number CL-82
Capacity Net Cubic Feet	4.05	4.87	6.17	7.90
Shelf Area Square Feet	8.81	11.22	13.43	14.11
Number of Ice Cubes . . .	56	84	112	140
Number of Trays	2	3	4	5
Lbs. of Ice Per Freezing	4	6	8	10
Exterior Finish	Lacquer	Lacquer	Lacquer	Lacquer
Interior Finish	Porcelain	Porcelain	Porcelain	Porcelain
Hardware	{ Satin finish Chromium plated	{ Satin finish Chromium plated	{ Satin finish Chromium plated	{ Satin finish Chromium plated
Number of Inches of Insulation	3	3	3½	3½
Insulation Material	{ Balsam Wool	{ Balsam Wool	{ Balsam Wool	{ Balsam Wool
Height	{ 55" broom high legs	{ 58½" broom high legs	{ 61½" broom high legs	{ 63½" broom high legs
Width	26¾"	28½"	32"	36½"
Depth, excluding hard- ware but including door	22"	22½"	25"	24½"

All models equipped with temperature control and defrosting switch, Refresho pan—one rubber ice tray, glass chilling tray.



MODEL No. CL-62



MODEL No. CL-42

HEAVIER DOORS—THICKER INSULATION—BETTER MATERIALS AND WORKMANSHIP

YOU know what the public wants in a standard refrigerator. You know how other refrigerators answer those demands.

You know those refrigerator talking points that count in selling and their relative importance.

Now, take CHILLDARE, feature by feature, and see how this great refrigerator measures up.

Could anyone ask for a handsomer cabinet? Its conservative lines, rounded corners, heavy chromiumed hardware, and balanced proportions give CHILLDARE the sheer, clean beauty of the aristocrat.

Look at the thickness of CHILLDARE walls. Think what this added insulation means to the user in terms of refrigerating efficiency and economy. Think, too, what it means to you as a selling argument.

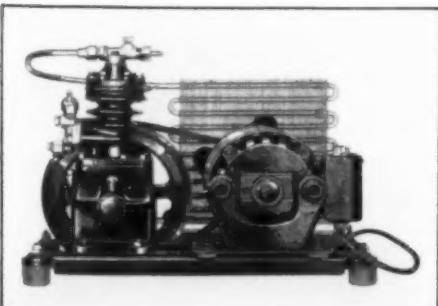
Notice the deep, staunch door, much heavier than the usual doors on other refrigerators of equal size. Swings open at the slightest touch. Closes solidly, quietly, against a door-jamb of heavy molded Panelite—moisture-proof and permanent.

Now, examine CHILLDARE'S superb refrigerating unit. Not merely a series of tubes around the entire freezing chamber, but a specially designed solid cast aluminum unit with refrigerating coils running both above and below each tray—increasing freezing speed, and correcting dissipation of cold. Radiation fins are solid aluminum, cast integral with the unit.

Because refrigerator buyers want ample freezing space, even the smallest CHILLDARE has large freezing trays. Because they want easily removed ice cubes, CHILLDARE provides a rubber separator in all models. Because they want a hydrating pan, crisping tray and temperature control, CHILLDARE has them as standard equipment.

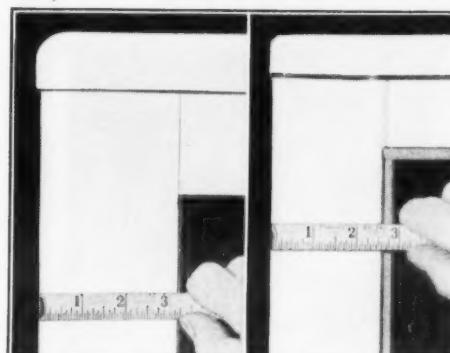
The buyer wants assurance of dependable, low-cost, trouble-free service; these, CHILLDARE insures by using standard motor, pump, condenser, of proved performance and long-life.

Above all, the buyer wants Value. Point by point, dollar for dollar, CHILLDARE delivers the greatest refrigerator Value on the American market today.

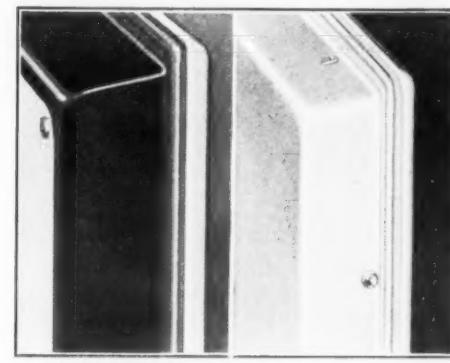


MOTOR AND COMPRESSOR

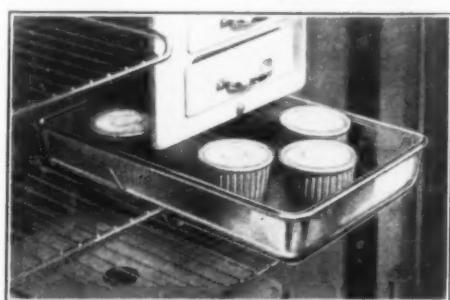
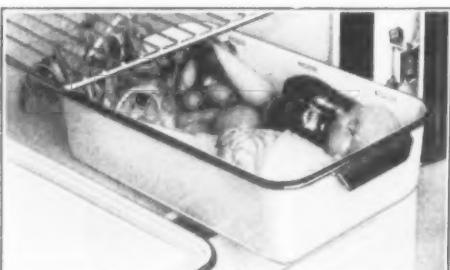
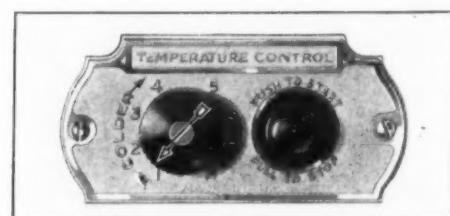
Quality products of standard design. Proved by years of refrigerating service. Simple in design. Trouble-proof. All working parts oversize for long, care-free service.



CHILLDARE



CHILLDARE



INSULATION

Consistently heavier walls and extra insulation brings increased refrigerating efficiency—decreased operating costs. Illustration shows how CHILLDARE walls compare with walls of one of best known largest selling makes.

DOORS

CHILLDARE doors are thick and strong. Note difference between doors on one of best known largest selling makes and CHILLDARE Refrigerator of same size.



PANELITE Door Jamb with mitered joints. No warping. Moisture proof and permanently attractive appearance.

CHILLING UNIT

All-cast aluminum, with fins cast integral with body. Freezing coils run under and over each ice tray. Cold applied direct to trays insuring increased freezing speed.

TEMPERATURE CONTROL

8-point temperature control located on refrigerating unit, gives wide range of temperatures for every freezing need. Off and on switch for defrosting on same panel.

REFRESHO PAN

Large size Refresho pan standard equipment with each CHILLDARE for keeping vegetables and other moist foods fresh.

RUBBER TRAY

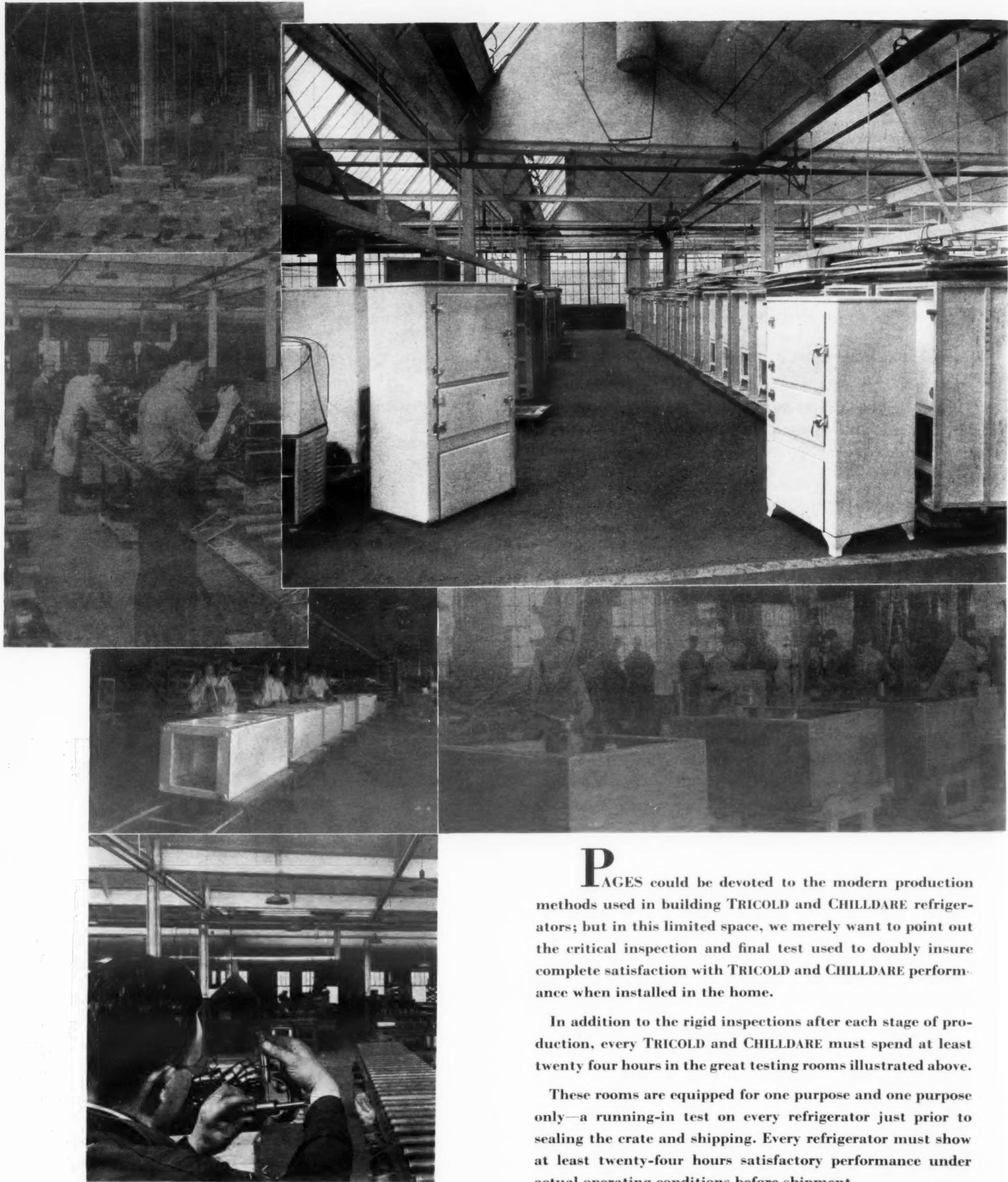
Standard equipment on all CHILLDARES. Enables instant release of ice cubes—without use of warm water. Just lift out, bend, and the ice cubes drop out.

CHILLING TRAY

The bottom tray in CHILLDARE is recommended for quick chilling and crisping of salads—and for chilling desserts. It can also be used for storage of unused desserts, frozen salads and other foods.



HOW WE INSURE SOUNDNESS IN

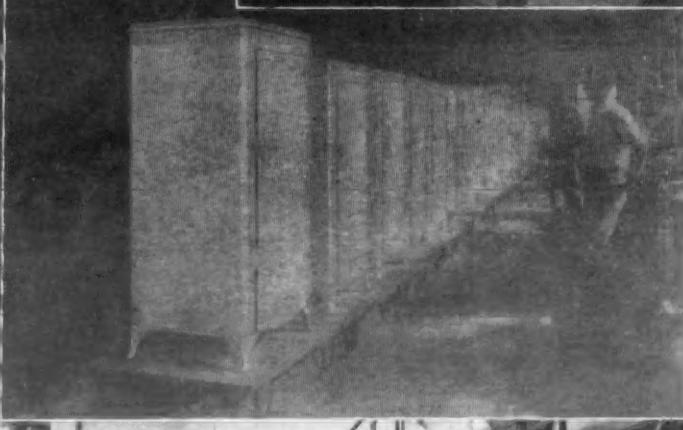
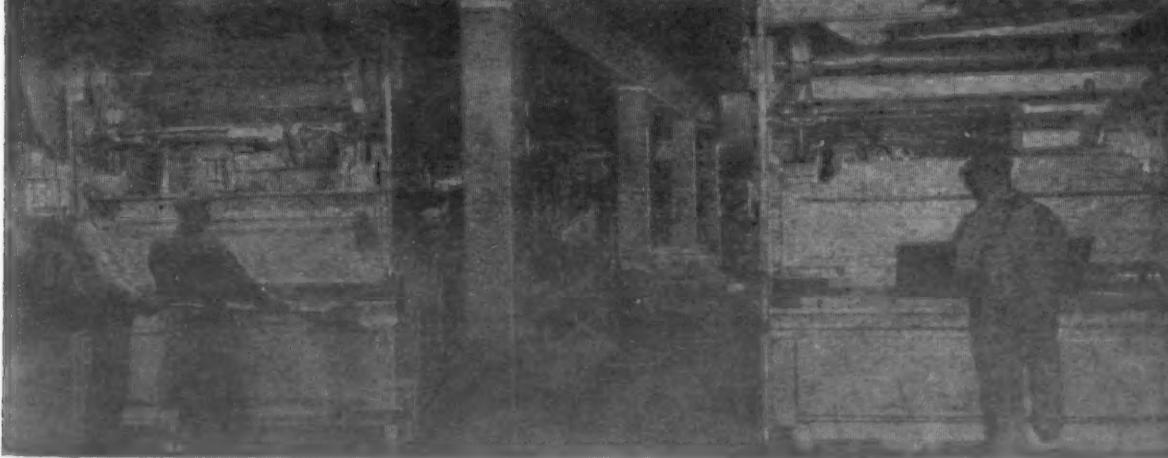
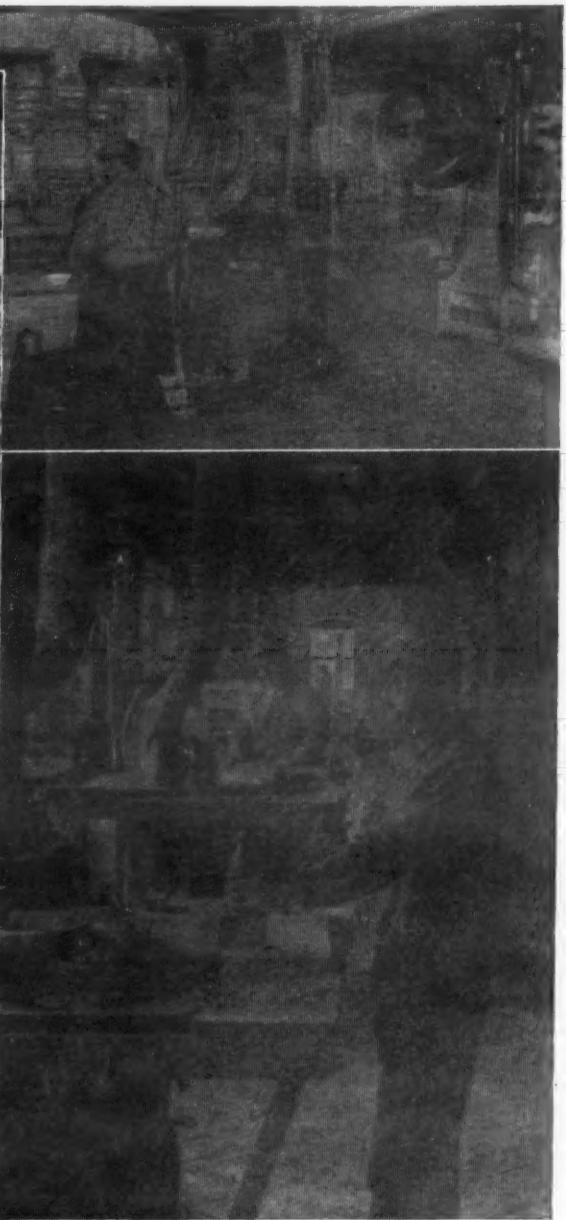
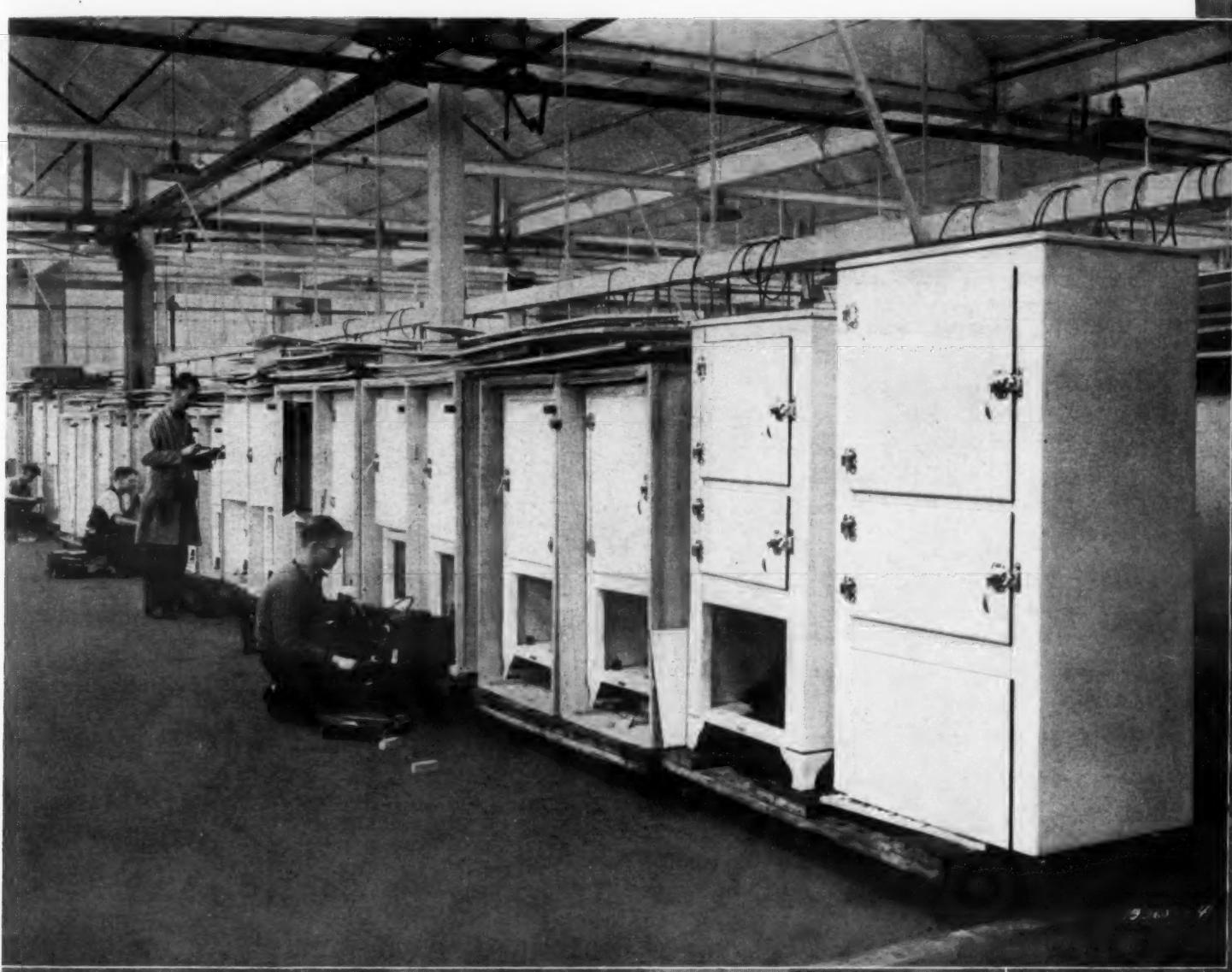


PAGES could be devoted to the modern production methods used in building TRICOLD and CHILDDARE refrigerators; but in this limited space, we merely want to point out the critical inspection and final test used to doubly insure complete satisfaction with TRICOLD and CHILDDARE performance when installed in the home.

In addition to the rigid inspections after each stage of production, every TRICOLD and CHILDDARE must spend at least twenty four hours in the great testing rooms illustrated above.

These rooms are equipped for one purpose and one purpose only—a running-in test on every refrigerator just prior to sealing the crate and shipping. Every refrigerator must show at least twenty-four hours satisfactory performance under actual operating conditions before shipment.

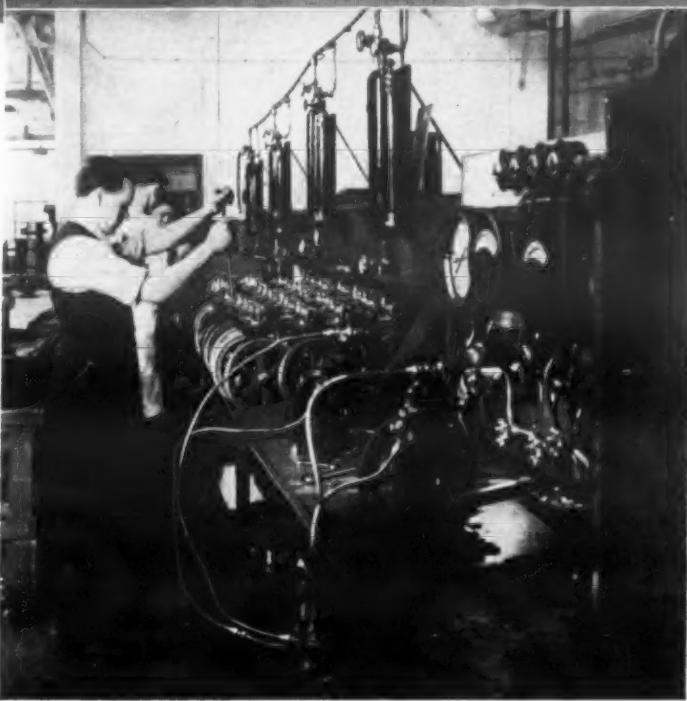
TRICOLD AND CHILLDARE MERCHANDISE



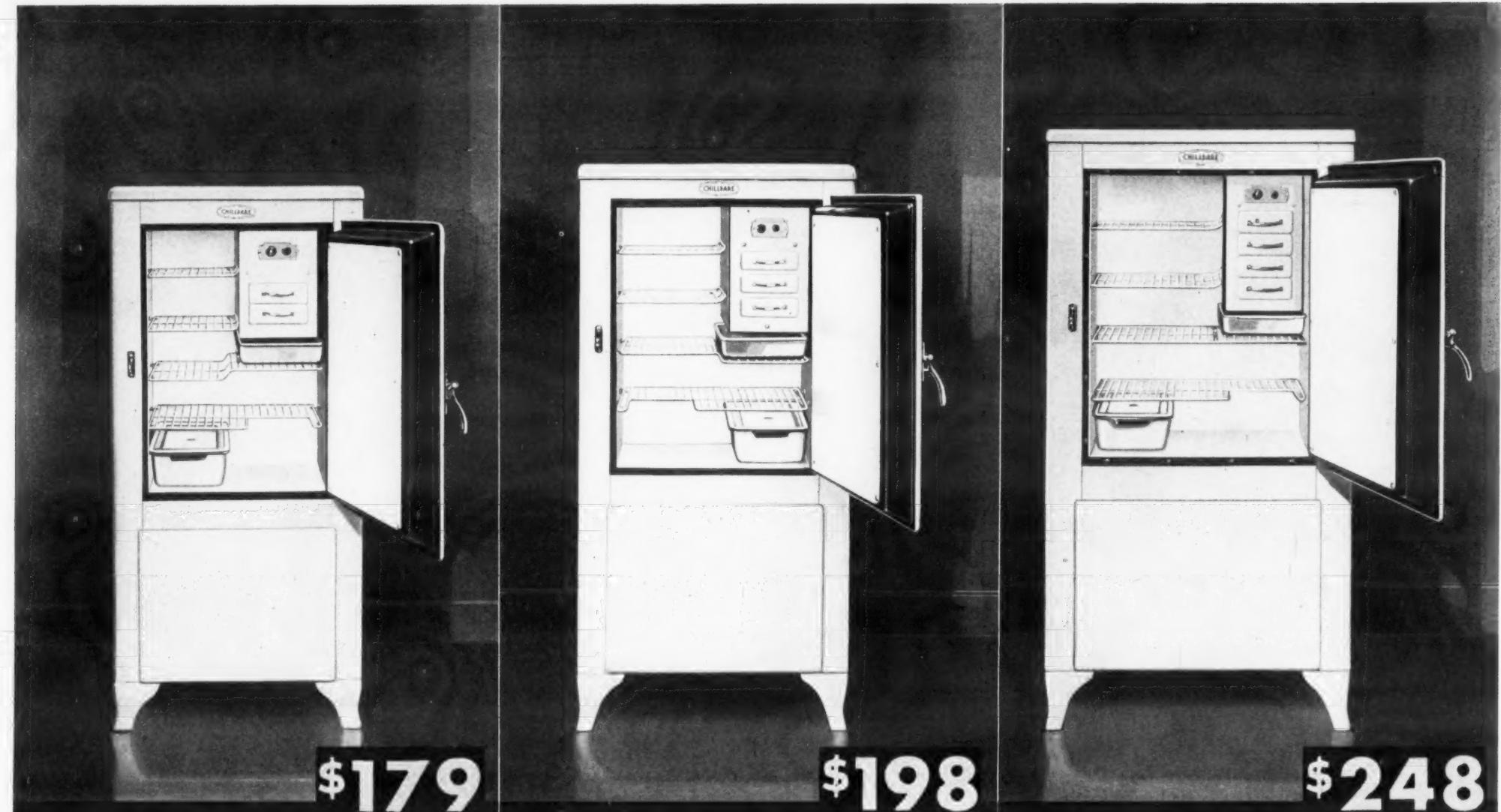
Detection of defects in operating efficiency brings rejection, and return of the refrigerator to production for recalibration and adjustment. Every TRICOLD and CHILLDARE must be as nearly perfect as experienced workmen, modern machinery and precision instruments can make them.

Tests Insure Customer Satisfaction

While back of TRICOLD-CHILLDARE merchandise are two large plants with every modern production facility, the merchant's mind should center on these inspection and running-in test rooms. Above all else they are symbolical of the standards and policies governing the manufacture of the TRICOLD Corporation's merchandise. They insure customer satisfaction, and a minimum of service calls for the distributor and dealer.



NOW, LET'S SEE WHAT THE



• CHILLDARE MODEL CL-42 •

CHILLDARE MODEL CL-52

CHILLDARE MODEL CL-62

The above are retail prices, F. O. B. Detroit



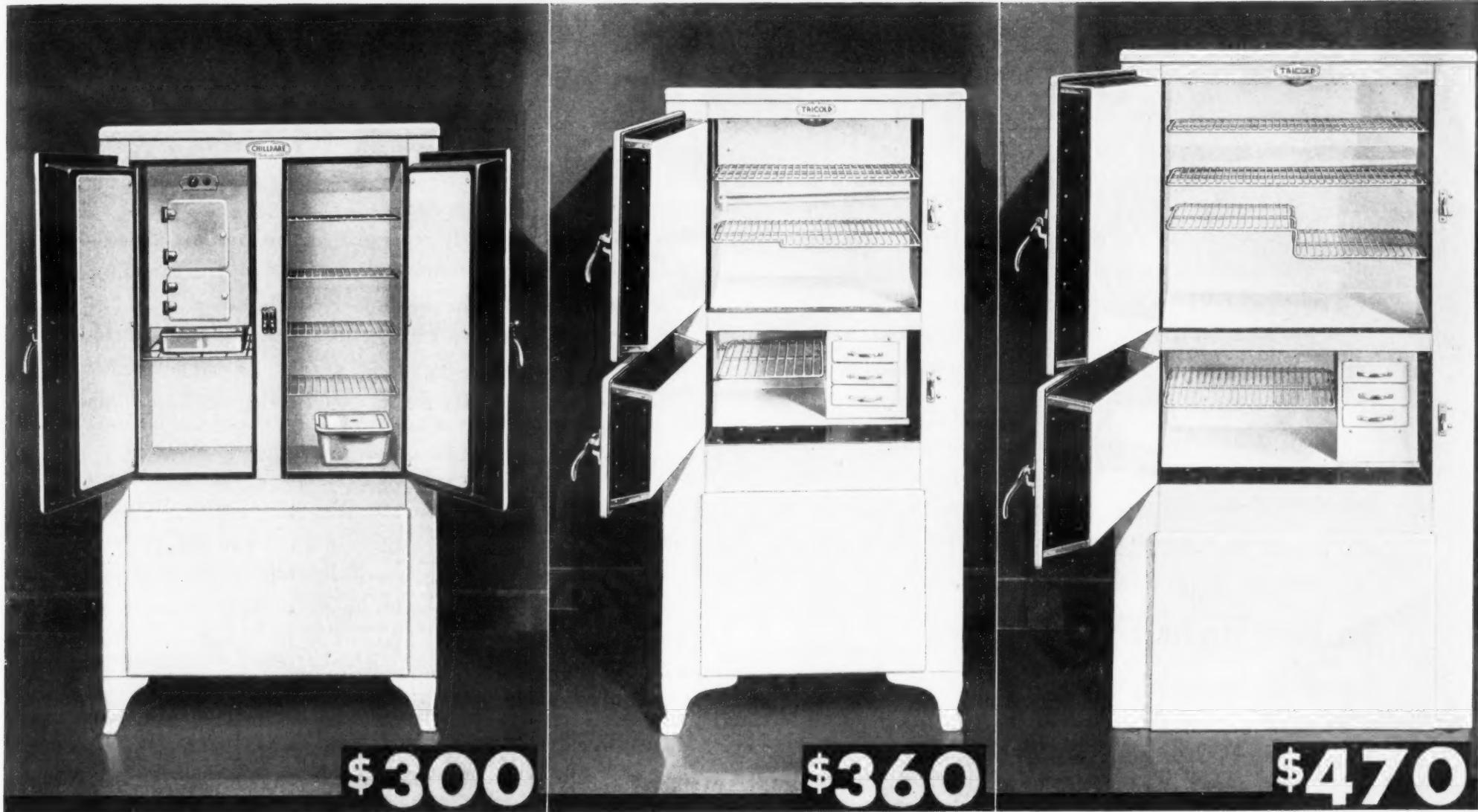
ON the top of this page is illustrated the complete TRICOLD-CHILLDARE line. Study its merchandising possibilities remembering that last year \$236,425,000 worth of American money was exchanged for electric refrigerators. Picture to yourself what share of these dollars you could reap for your firm this coming year with the merchandise shown above.

Some manufacturers offer refrigerators at prices even lower than our lowest priced item—other manufacturers offer merchandise considerably higher than our highest priced item, but to the distributor and dealer who has carefully analyzed the market, this line challenges his attention.

With TRICOLD-CHILLDARE 100% of the market in your territory lies at your feet. At no place in our picture have we made provision for cheap merchandise, but when quality is considered we do offer in every detail the greatest merchandising values in the history of refrigeration to date. We offer the kind of merchandise that the buying public wants. The American people have demonstrated that they purchase quality and not price.

Look over every TRICOLD and CHILLDARE illustrated above. Compare it for quality, features and price, which when placed together give a sum total called value. Compare it with what you are now handling, or if you are not already in the business, go on a shopping tour and check carefully against the merchandise shown above, the offerings of every other manufacturer in the United States of America. Such a check will give you your own answer.

COMPLETE LINE LOOKS LIKE



\$300

CHILDDARE MODEL CL-82

\$360

TRICOLD "HOST"

\$470

TRICOLD "IMPERIAL"

With this complete line you are in refrigeration 100% not 50%. With such merchandise on your floor, you are equipped to exercise your merchandising ability to the full. How often have you heard your friends in the trade say, "I could have done so much better this year if the line had been right". Study it feature for feature, price for price, and you can only come to one conclusion, namely, that TRICOLD-CHILDDARE will dominate the market wherever aggressively displayed.

Remember that every model straight across the board carries our standard discount to the distributor and through him to the dealer without dependence on that peculiar thing called a "special" with its allurement of low retail price and handicap of no profit. Our discounts are soundly arrived at, insuring profit to us and profit to our distributors and dealers. They are the most interesting discounts offered in the trade today.

Once again, check this entire line against what you know of the buying public. Do these refrigerators have the features that people want? Picture this entire line displayed in your own show room. Visualize the prospective customer arriving to inspect it. Can your customers be assured of finding in TRICOLD-CHILDDARE just what they want? If you know refrigeration and the refrigeration buying public, you can only come to one conclusion—not one single potential customer should leave your show room floor without making a purchase.



NOW, LET'S TALK MERCHANTISING

SUCCESS DEPENDS ON BUILDING A The Dealers Will Buy Line That Offers Them

YOUR success as a distributor in refrigeration depends upon your ability to line up a large number of good retail outlets. The more retail outlets that sell the lines you handle, the greater your profits will be. This all sounds simple in theory, but every distributor knows that it is not so easy in practice.

Two or three large manufacturers control the majority of the retail outlets. The large number of dealers handling the lines of these manufacturers reduces the number of outlets readily available for the distributor of other lines.

In the fight for dealers few can win

The remaining distributors all handle lines so nearly alike that every distributor finds it difficult to build up a large dealer organization. He is obliged to share the remaining business on a more or less proportionate basis with all other distributors in a similar position. Each distributor of this type gets a few dealers largely on a friendship basis—and no one distributor has a sufficient number of the best dealers to give him a big enough volume to yield the kind of profit he would like to see.

As long as a distributor handles "just another refrigerator" he has nothing to offer the dealer that his competitors can't offer. Even though dealers handling certain well known lines work on such a small margin that their actual profit is little or nothing, he finds it difficult to sell those dealers even at larger discounts. Unfortunately the dealer thinks his volume will offset the small profit per sale. Even though this is a fallacy, because so many other dealers handle the same lines and the manufacturers' house to house salesmen compete with the dealer, the distributor nevertheless finds certain lines so entrenched that his selling job is hard.

There is only one way you can sweep through all competition, and this is by going to dealers with a refrigerator

that they will instantly recognize as the kind every prospect would buy in preference to any other. If you can show him the kind of line he would like to handle—the kind of refrigerator he wouldn't want his competitor across the street to have—then your job is easy. If you can go to him with that kind of refrigerator, "sales resistance" will fade into oblivion.

The dealer wants merchandise that will sell—and if you can show him a refrigerator that he must admit will outsell on its sheer merit, competing lines, you will find his attitude distinctly receptive. If in addition to this you can show him where he can make a bigger margin of profit on every sale, and a higher average "unit sale", you will find him ready and anxious to listen.

TRICOLD alone offers you the kind of line that will open doors that were formerly closed to you. Every dealer who sees the TRICOLD will recognize it as the first refrigerator that will crowd his show rooms—a refrigerator that is so different in principle and results that his only competition will be from other TRICOLD dealers.

Substantial profits depend on higher than average "unit sale"

You can show the dealer, too, that his average "unit sale" will be higher on the TRICOLD than with any conventional refrigerator. When you consider that in our year of depression (1931) the American people spent according to authentic figures \$236,425,000 for 965,000 electric refrigerators, or an average of \$245.00 per refrigerator, you have the answer to the kind of merchandise the American people want. If the average price was \$245.00, this means that half the dollars were spent for refrigerators that sold for more than \$245.00—half for refriger-

FROM A DISTRIBUTOR'S STANDPOINT

POWERFUL DEALER ORGANIZATION

Greatest Opportunity for Sales and Profits

ators that sold for less than \$245.00. Any thinking dealer will appreciate that if a big part of the buying public paid prices far in excess of \$245.00 for such details as a larger cabinet, a better finish and unimportant "gadgets" sold under the guise of "features", that all of these people would buy a TRICOLD, once they understood what its revolutionary features mean to them in terms of results that are available in no other refrigerator.

Dealers will also be quick to see that a substantial part of the buying public that heretofore could not see their money's worth in higher priced refrigerators will not be satisfied with anything less than a TRICOLD—and will be willing to pay more in order to own one.

This means a higher unit sale for the dealer and distributor—twice as much net profit from the same number of sales.

The buying public must know the merit of your line

Combine this kind of merchandising proposition with aggressive advertising—newspaper, direct mail, window displays, publicity, etc., concentrated where the product is being sold—advertising that will make TRICOLD known to every refrigerator prospect in every distributor's territory and you have a distributor's proposition that will enable you to dominate the quality field where the biggest profits lie.

But, what about the other half of the market? The business that runs into a large number of unit sales and which depends on big volume for profits? Here, too, TRICOLD distributors will be in a strategic position. The answer to this is CHILLDARE—companion line to TRICOLD—outstanding values in refrigerators of the standard type. This line coupled with the unusual features of TRICOLD makes the most complete merchandising set-up offered by any one in the industry today.

Dealer must get people into his store before he can sell them

Every distributor knows that the dealer must first get people into his store, before he can sell them refrigerators. He knows that no other line of refrigerators has any outstanding feature or features that would make every prospect want to see it. As a result, the dealer who handles only the standard or conventional type of refrigerator is limited in his opportunity for sales to the small number of prospects who visit his store in preference to some other store that sells refrigerators of the same general type.

Now, picture TRICOLD in terms of sales opportunities for both TRICOLD and CHILLDARE. TRICOLD is the one refrigerator so different, so revolutionary, that every prospect for a refrigerator will want to see it. The TRICOLD-CHILLDARE dealer can expect to get a large percentage of all the refrigerator prospects into his store to see the sensational TRICOLD. This gives him his opportunity to sell both TRICOLD and CHILLDARE—TRICOLD to those people who are TRICOLD prospects—CHILLDARE to those who are CHILLDARE prospects. In CHILLDARE, the dealer can show those whose purchasing power is restricted, the greatest values in refrigerators of highest quality—values that cannot be duplicated no matter how much they shop around—values that will bring them back to his store to buy.

Distributor's biggest job is to pick the right line

Interpret these facts in terms of sales and profits to you as a distributor. Remember merchandising success starts with merchandise. The ability to recognize the right merchandise when it comes along and the initiative to act quickly has been the biggest single factor in the success of leading distributors.

THE KIND OF DISTRIBUTORS AND DEALERS WE WANT...

WITH absolute conviction that we possess the most potent merchandising weapon in the entire refrigerating industry, it is our fixed purpose to select only distributors and dealers of the highest order. We cannot be interested at this time in men who, without adequate capital, *hope* to build a distributing organization in the event they are successful in obtaining the right line. We are interested only in those established organizations of sound, proven worth who are governed by clean and aggressive thinking. To those who understand merchandising of our kind; to those whose positions in their respective communities are firmly established on such a basis as to warrant their success; to those who are aggressively building for the permanency of their future in refrigeration, the TRICOLD-CHILDDARE franchise offers a tremendous opportunity... one worthy of immediate and personal investigation.

The selling season is rapidly approaching. Only a short time remains to complete your arrangements for this year in refrigeration, and if you are to be completely organized in time

to get the benefit of the opening rush of the season's business... action is imperative.

If you have made up your mind to participate in the great refrigeration market for the year 1932, wire our general offices at Buffalo for an appointment and personally come direct to headquarters to check with us this remarkable opportunity. Our output this year, while large, is not unlimited, therefore, those who participate in this year's production will be men who are governed by action.

Waiting for the slower process of correspondence may mean not only that our 1932 output may be spoken for, but that some other distributor will have earned priority consideration in your territory.

Of course we will be glad to discuss the matter with you by mail in the usual way, but again we urge... take the first train to Buffalo, meet the principals in this business, and personally inspect this merchandise. This represents your opportunity to dominate refrigeration in your territory.

TRICOLD REFRIGERATOR CORPORATION

General Offices and Sales Division
296 Delaware Ave., Buffalo, N. Y.

Manufacturing Division, Detroit, Mich.

LITTLE STORIES OF INTERESTING
PEOPLE
IN THE REFRIGERATION INDUSTRY

THE EXPANSION VALVE

By George F. Taubeneck

Fair Public Utility

Refrigeration distributors and dealers in New Orleans can find little cause for complaint in the merchandising methods of Public Service, Inc., an Electric Bond & Share utility of that city.

This central station sells 10 different makes of electric refrigerators and one gas refrigerator!

Refrigerators on display in the Public Service, Inc., showrooms include Electrolux, Servel, Copeland, Frigidaire, Kelvinator, Majestic, Norge, General Electric, Mayflower, Westinghouse, and Leonard.

Acting as a dealer for every distributor of household automatic refrigerators in New Orleans, Public Service, Inc., sells modern refrigeration to the families on its lines, lets advertising influence the customer's decision as to the particular make which will be installed.

Two refrigerators are featured each month. On the fifteenth and thirtieth the window display is changed to permit another make to take the spotlight. Refrigeration advertising of the utility during that period is devoted to the featured make.

Last year 3,660 refrigerators were sold by Public Service, Inc., of New Orleans.

And not one was sold at a cut price, or at what dealers would call "unreasonable" terms! On each refrigerator exactly the same terms are offered as those quoted by the distributor.

C. D. Jennings, head of the refrigeration department of the Public Service, Inc., merchandising division, directs the bell-ringing of nine salesmen who devote all their time to selling modern refrigeration the year 'round.

Eighteen other appliance salesmen in the merchandising division supply leads to the nine refrigeration specialists.

Formerly all these salesmen sold all the appliances handled by the utility. But Public Service, Inc., learned the same lesson that hundreds of other merchandisers of electric refrigeration have learned in the last few years, viz., that concentration is essential to sell refrigerators in the face of today's alert and hard-driving competition.

Floor salesmen are instructed to talk impartially about each make on display.

Field salesmen maneuver about until they discover what make seems to hold preference in the prospect's mind, whereupon they plug that machine for all it's worth.

Billy Sunday Drinks



Billy Sunday, famous enemy of the Devil, takes a bracer of cold milk in his hotel room.

'Life Is Just a Bowl of Cherries'



Who wouldn't forgive this "thief in the night?"

And that, ladies and gentlemen, takes not only considerable dexterity and nimbleness of mind, but a rather comprehensive memory (of sales features of the various makes) as well.

Wonder if they ever get the stories mixed, and talk about Frigidaire Monitor Top, the Kelvinator Cold Control, the General Electric Rollator, and the Dual Automatic Copeland?

Society Note

Among those who attended the Mardi Gras at New Orleans last week were "Cap" and Mrs. Griswold, General Electric refrigerator distributor at Fort Worth, Tex.; and Mr. and Mrs. F. B. Connolly and son, Kenneth, who distributes G. E. refrigerators from Billings, Mont.

Mr. and Mrs. A. G. Riddick, New Orleans G. E. distributor, had as their guest for the last days of the carnival, Miss Edwina Nolan, home service director of the General Electric refrigeration department at Cleveland.

And, as you will note by reading the current instalment of "An Editor on Wheels," somewhere in the mirlace of whoopeemakers was the Valve.

Of Kenneth Connolly, General Electric distributor who sold 156 per cent of his quota last year out in the Great Open Spaces where families have to travel a week to make a friendly call on the next-door neighbors, words have been written in the two preceding issues of this column.

First time we talked about him there was an error. We declared that there were 255,000 wired homes in his territory. That figure comes more nearly representing the number of persons living in wired homes in his territory. Actually there are only some 75,000 wired homes in that section.

F. B. Connolly is a quiet, strong old gentleman, who has spent several decades building up a loyal trade following in the Southwest.

He wears an aural amplifying device, enjoys sightseeing and, like Theodore Roosevelt, reads detective novels on trains.

"Cap" Griswold and his wife are a jolly pair of travelers who rebound quickly and good humoredly from the innumerable trying circumstances which long journeys invariably present, who readily adapt themselves to new situations, and who find a healthful zest in life.

"Cap," like Ben Ritter, has a way with him when it comes to negotiating with hotel clerks, waiters, cab drivers, guides, and other varieties of gypmen.

He never pays the first-quoted price, loves to barter, and is pleased as a man who has just won \$50 shooting craps when he drives a shrewd bargain.

LITTLE STORIES OF INTERESTING
IDEAS
IN THE REFRIGERATION INDUSTRY

Somewhat by accident we picked up an interesting biographical note about Eddie Nolan.

Now we know—or think we know—where she gets her man-to-man bravado, her ability to bask in lime-light and spotlight glare with a total lack of self-consciousness, and her ease and self-assurance on a platform (even when facing an all-male audience, as she is occasionally called upon to do).

Her father is a Congressman from Minnesota. Doesn't that explain much? Incidentally, she grew up in a family composed of nine sisters!

Political Boss

While we're on the subject of politics we might mention that Frank Wolf, General Electric distributor in Buffalo, has been the political boss of that city for a lengthy period of years.

For more than a decade he was city treasurer. He turned down the nomination (and virtually assured election) for mayor of Buffalo. And he still is a dominant power behind the throne.

Few men in the city are so well known to Buffalo citizens.

New Orleans Hospitality

When we hear the words, "southern hospitality," we generally think of Atlanta, and the friendly treatment accorded us there by the Warrens, V. P. Larkin, D. D. Alexander, H. A. Pendergraph (now G. E. distributor in Tennessee), J. B. Reeves, C. T. Baker, O. J. Willoughby, and many others.

But now we have a new set of names which will henceforth be associated with those magic words, "southern hospitality." We met them in New Orleans.

Particularly kind and helpful were Harry A. Thompson, president of Edward N. Eberling & Co., Inc., Copeland distributor there, and Wayne B. Wands, Thompson's right-hand man.

Mr. Wands gave us an insight into the life of New Orleans inhabitants and the mode of living of the Bohemian art colony which dwells in the Vieux Carre for which we will be everlastingly grateful.

In addition to being an astute salesman and angler for big contracts, Mr. Wands is a well-traveled man of considerable culture and erudition.

Another interesting New Orleans gentleman we met was E. P. Wendel, head

man out at the National Refrigerator & Fixture Co., Inc., which specializes in custom-built commercial refrigerators.

Some of Mr. Wendel's cases are being used in the gigantic program of rehabilitation of the famous New Orleans public market system.

His coolers also took part in the ice vs. mechanical refrigeration test staged by the New Orleans city fathers a few weeks ago.

Selling Dealers

Some time ago the Manz Corp. of Chicago, which several years ago printed a book for which we wrote much of the copy, sent us samples of "Selling Dealers," a nine-part instruction course written by Charles L. Low.

From part one of this course we should like to quote Mr. Low's basic principles as possible suggestive aids to the scores of field representatives for electric refrigeration manufacturers who today are trying to increase national coverage and number of outlets.

Mr. Low is more concerned with getting *good* dealers than just *more* dealers. His basic concepts follow:

"1. We would plan the introduction of our product to the dealer and his organization so that a favorable first experience will be sure.

"2. We should carefully time a period of progress over such a period that the product will become as firmly fixed as possible in the minds and activities of dealer and organization.

"Note that word **TIME**. In this work, timing is everything, just as it is in a story, a novel, or a play. Rush progress, let progress drag, and the salesman's work is for nothing. NEVER try to do in six weeks what should cover six months.

"This means that every dealer salesman who does not know clearly what he is setting out to accomplish in making a good dealer for his line—who does not know thoroughly all the steps he should take—who does not have a definite purpose for each call—well, such a salesman is simply out for a ride. He'll end up with a few good dealers—say 10 per cent. The remainder will be terrible. And the reason is—CHANCE did the selling job.

"3. The period of progress must be followed by a sense of accomplishment, a feeling of appreciation, an idea of continued place—on the part of the successful dealer and his organization.

"These are basic principles in selling dealers, any line, any product—except for a 'once over' fly-by-night affair. The writer doesn't know a single business which, given a fair product and half-good management, has ever failed when these principles were used. He can point to hundreds of failures in which neglect of these principles in dealer selling was the principal cause."

How To Sell Refrigerators



The Servel salesman pictured above gets an early start in the big spring race for prospects and sales.

COST OF LIVING STUDY SPONSORED BY FORD

LONDON, England—Families of the working class in 14 European cities would need from 10 to 165 per cent more income per year to maintain the scale of living of the working class in Detroit, it was found in a survey by the International Labour Office of the League of Nations.

The 14 cities covered in the survey were Berlin, Germany, where a 60 to 74 per cent increase would be necessary; Frankfort, Germany, and Copenhagen, Denmark, where a 15 to 27 per cent increase would be necessary; Stockholm, Sweden, 51 to 56 per cent increase; Helsinki-Helsingfors, Finland, 165 per cent increase.

Paris, France, with 52 to 65 per cent increase necessary for a working family to live on the Detroit scale of living; Marseilles, France, 74 to 89 per cent increase; Antwerp, Belgium, 60 to 71 per cent; Rotterdam, Holland, 18 to 23 per cent; Manchester, England, 10 to 15 per cent; Cork, Irish Free State, 22 per cent; Warsaw, Poland, 60 per cent; Barcelona, Spain, 144 per cent; Istanbul, Turkey, figures not known.

The inquiry resulting in this survey came from the Ford Motor Co., Ltd., of London which wished information on the relative costs of living in certain European cities in which the company had established, or proposed to establish, factories.

So much interest was aroused in the result, according to the Labour Office, that the Twentieth Century Fund, Inc., of Boston paid the expenses to cover such an inquiry. The study was limited entirely to an answer of the question put to it by the Ford Co.

The basis for the study was a report on 100 "average Ford employee families." Qualifications for these "average" families were: the husband must have earned approximately \$7 per day during the year 1929. He must have been in Ford employ throughout the year, and have worked at least 225 days.

He must have been the sole breadwinner in the family, which was to consist of a husband, wife, and not less than two nor more than three children under 16 years of age. No other persons were to live with or be dependent upon the family, which was to live in a single house, flat, or apartment.

A survey of 100 such families, the husbands and fathers of which were employed by the Ford Co. in Detroit, showed the average income per family to be \$1,711.87, and the average persons per family 4.5. The family spent 32.3 per cent of the income for food, 12.2 per cent for clothing, 22.6 per cent for housing, 6 per cent for fuel and light.

For life insurance, 3.4; for furnishings, 5.2; for transportation, 2.2; for illness expense, 3.8; 0.4 for school expense; 1 per cent for cleaning supplies; 0.7 per cent for barber expense, and 10.2 for miscellaneous expenses. Most of the families broke even or ended the year in debt.

The expenses of the family were broken down into kinds and amounts of food consumed; kind and number of garments bought and worn; types of dwellings and their typical features. Detailed tables were furnished the In-

Norge Dealers Meet in Chicago



John H. Knapp, vice president in charge of sales of Norge Corp., was one of the speakers at the convention of the Sampson Electric Co., Chicago Norge distributor.

ternational Labour Office to cover this material.

Actual samples of typical clothing worn by Detroit working families were bought and sent to the 14 European cities in order that prices on the same quality of goods there might be ascertained.

As far as possible, the Labour Office investigators followed the same methods of determining standard of living by the type of dwelling and the type of product consumed by the European working class families.

The report did not pretend to be a discussion of wages, or to draw any conclusions on the conditions of the working class in Europe, according to the preface. "One of the factors, when the conditions of one country are taken as a standard, is that of cost of living, or the level of prices, in the area in which the wages are to be spent, and it is to this factor and this factor only that enquiries have been directed," the preface said.

"Also, it should be repeated, the figures given relate only to the estimated annual expenditure in different countries, based on the family budget of a particular category of Detroit worker. It should not be assumed that similar results would be obtained if other categories of Detroit workers or the family budgets of another country had been taken as a base."

4 REFRIGERATORS SHOWN IN FAIR AT PHILADELPHIA

PHILADELPHIA—Four makes of electric refrigerators, as well as other electrical appliances, were exhibited at the "Home-makers" Fair, held in the Strawbridge & Clothier department store last week.

The fair was held in decorated booths on the fifth, or home furnishings floor. Refrigerators shown included Frigidaire, Norge, Mayflower, and Westinghouse. The Merryway Electric Food Preparer and Tufglas refrigerator dishes were also displayed.

Winner of Contest Chooses Servel As Prize

BUFFALO—"If I am lucky enough to win a prize, I would prefer to win a Servel Hermetic refrigerator," said Mrs. J. Erftonbeck, one of the 3,000 ticket holders who wrote their names and choice of prizes on stubs deposited at the formal opening of the new showroom of the Eriksen Piano Co., Servel Hermetic dealer here. Her name was later drawn as the winner of a Servel machine.

Tickets were deposited by visitors at the store over a period of one week, and were designed to permit the person depositing the ticket to specify what type of merchandise he was most interested in.

Of the 360 tickets deposited on the opening date, 80 per cent specified a preference for electric refrigeration.

STATE DISTRIBUTOR NAMED BY O'KEEFE & MERRITT

SAN FRANCISCO—The William A. Hawley Sales Corp. has been appointed sales distributor in northern California for the O'Keefe & Merritt refrigerator. Paul R. Prietsch, manager in northern California for O'Keefe & Merritt will remain in that capacity, but will confine his attention mostly to ranges.

Offices and showrooms for the Hawley Sales Corp. were opened at 881 Mission St. here Feb. 15.

William A. Hawley, at one time west coast representative for the Hoover vacuum cleaner, is president of the firm. L. A. Tracy is sales manager.

BOAT PLIES ICY STRAITS EQUIPPED WITH FRIGIDAIRE

CHEBOYGAN, Mich.—The Chief Wa-Tam, railroad car ferry operating over the Straits of Mackinaw between Mackinaw City and St. Ignace, is surrounded by tons of refrigeration in every trip across the Straits during the winter months.

The ice of the Straits was not enough, however, to prevent the E. E. Pauly Co., Frigidaire dealer here, from selling and installing Frigidaire equipment on the boat.

GAS REFRIGERATORS FEATURE OF COOKING SCHOOL

SEATTLE—Automatic gas refrigerators and other gas equipment were featured at the Safeway Gas Cooking School held here Feb. 17 to 19 under the auspices of the Safeway Stores organization.

Julia Lee Wright, national director of the homemakers bureau of the grocery chain, was in charge of the school. The Seattle Gas Co. furnished the gas refrigerators used in the demonstrations.

MISSISSIPPI PROPOSES TAX ON LIGHT BILLS

JACKSON, Miss.—A proposed five per cent tax on gas and electric light bills, which would yield the state \$450,000 annually, is now before the Mississippi legislature.

The bill for the new tax is one of a number of proposals to help balance the largest deficit in the history of the state of Mississippi.

HOME SERVICE GIRL OUTSELLS EVERY MELBOURNE SALESMAN

MELBOURNE, Australia—Miss Helen Smith, the first International General Electric Co. home service director in Australia, has outsold both in number of units and size of units sold every salesman in Melbourne.

27 MICHIGAN TOWNS GET ELECTRIC POWER

ANN ARBOR, Mich., Feb. 23.—Extension of power system lines in Michigan during 1931 took electricity to 27 communities which had not previously had service from central stations, according to a report issued today by the Utilities Information Bureau. The 27 communities include 10 resort settlements.

These additions bring the total number of Michigan cities, villages, and hamlets with electric power service close to 1,300. Only eight incorporated villages, all small, and all distant from present system transmission lines, are among the few communities still without service, or dependent upon home or shop plants.

These are: Fire Lake, Posen, Millersburg, Walkerville, Buckley, South Boardman, Lake Ann, and Foresville.

During the year, nine Michigan towns changed in whole or part from municipal electric service to utility system service. Vassar sold its combined electric, heating, and waterworks plant to the Michigan Electric Power Co. now supplying the town. St. Ignace sold its Diesel engine plant and distribution system to the American States Electric Co., which has built a transmission line from Sault Ste. Marie. Lyons sold its hydro-electric plant to Consumers Power Co.

Grand Rapids and St. Joseph are among the larger towns which have changed from municipal service to utility service.

The 27 communities which hitherto had no central station electric service were: Girard, Chippewa Lake, Rodney, Point Lookout, Cloverdale, Lisbon, Long Lake, Rock Lake, Leach Lake, Assyria, Mosherville, Penfield, Crystal Lake, Ackerson Lake, Little Clear Lake, Lacey, Au Gres, Clear Lake, Dowling, Banfield, Boon, Eureka, Harrietta, Averill, Pleasant Lake, Texas Corners, and Milo.

SALES GAIN REPORTED BY DISTRIBUTOR IN JANUARY

COLUMBIA, S. C.—Despite the fact that 47 banks in South Carolina closed last month, L. J. Spiers, sales promotion manager of Perry-Browne, Inc., distributor for General Electric refrigeration here, reported last week that his company's sales for January were 300 per cent greater than January of the previous year.

In one day, shortly after the banks had failed, an attractive young couple dropped into the showroom and purchased a large model Monitor Top. A couple of hours later, a man who had lost all of his savings in one of the banks, bought a General Electric. Neither of these prospects had been contacted.

As Spiers related, he was planning to "ride" the salesman into whose territory these sales were made, but the salesman prevented this by walking calmly into the store with another order for a refrigerator.

ALABAMA DISTRIBUTOR FOR NORGE APPOINTED

BIRMINGHAM, Ala.—The Birmingham Electric Battery Co. was appointed distributor in the state of Alabama by the Norge Corp. recently. G. G. Steele will have charge of refrigeration sales. Norge units were formerly distributed in Birmingham by the Braid Electric Co. of Nashville, Tenn., who maintained a Birmingham, Ala., branch. The branch was discontinued about six months ago.

Salesman Kayoes Stribling



W. L. "Young" Stribling, heavy weight boxer (left), recently purchased an 11-cu. ft. G. E. unit from L. R. Booth, Georgia Power Co. salesman.

DEALERS

Check

these important points before you tie up with any other line

STARR★FREEZE ELECTRIC REFRIGERATION

for Homes and Commercial Purposes

Write, Wire or Visit
nearest office

New York City
Royal Refrigeration Co.
200 Lexington Avenue

Los Angeles
The Starr Piano Co.
1344 S. Flower Street

THE STARR COMPANY
RICHMOND, INDIANA
U. S. A. "Quality Products Since 1872"

✓ Starr-Freeze offers a wide variety of styles and models for both domestic and commercial purposes.

✓ Starr-Freeze offers a wide margin of profit for the dealer.

✓ Starr-Freeze offers a tried and proven product . . . long past the experimental stage, backed by a three and one-half year factory guarantee.

✓ Starr-Freeze is not an assembled product, but is built complete by an organization with over half a century's successful manufacturing experience.

Radio Dealers Recommend Addition of Supplementary Appliances

WASHINGTON, D. C.—Supplementary stocks of electrical appliances to keep down overhead expenses were recommended by radio dealers replying to a Department of Commerce questionnaire.

Results of the questionnaire are quoted in a bulletin, "Merchandising Problems of Radio Retailers in 1930," just published.

In reference to these supplementary lines, dealers pointed out that when radio sales were slow, merchandise of the electrical appliance type helped them keep business at a good level. Both radio and electrical appliance business can be had from the same prospect list, they pointed out.

Among merchandising problems treated in the questionnaire was that of the exclusive franchise.

"An analysis of the failure of retailers shows, in many cases," the bulletin reports, "that they came to grief because of their attempt to carry too many lines in a relatively restricted territory.

"With the decrease in the total number of radio set manufacturers, as well as the realization by jobbers and manufacturers that it is better to have a few successful outlets in an area than many on the verge of bankruptcy, the retailer, especially in the smaller towns, is having a better chance to develop his local market and build up a profitable business.

Change in Makes Carried Small

"Jobbers are beginning to weigh much more carefully the demands of successful houses for exclusive franchises in fairly large territories."

Little change in the policies of dealers with reference to the number of makes handled was noticed in the questionnaire replies as compared with similar questionnaires of 1928 and 1929. The average number was shown to be five different makes to each store. Three department stores carried 10, 12, and 15 different makes, respectively.

Discounts received on radio sets by dealers ranged from 40 per cent (reported by 31 per cent of those answering the questionnaire) to 50 per cent (reported by one firm). Eighty-eight per cent of those reporting stated that the usual practice is two per cent off for cash in 10 days; six per cent receive similar terms for cash in 30 days.

Sales Staff Important

More than two-thirds of the retailers reporting in the questionnaire stated that the problem of securing the right type of man for sales work was of great importance to them. Because many store managers have found it impossible to secure men who are intelligent and aggressive enough to stick to outside selling, many have to a great extent given up the policy of outside sales promotion.

Although many retailers believe that house-to-house canvassing, follow-up, etc., is necessary to the success of a radio store, only 32 per cent of the salesmen reported by the firms questioned can be classified as outside salesmen. Fifty-three per cent of the salesmen employed work "on the floor," and 15 per cent were "combination" canvassing and floor salesmen.

Retailers clearly favor a straight salary or salary and commission basis of compensating salesmen, the questionnaires showed. A majority of firms prefer the 10 per cent straight commission basis, the alternative plan being a small salary plus commission.

3.7% Revenue for Advertising

In 1930 the average expenditure for radio retail advertising was 3.7 per cent of gross sales. This figure was 4.4 per cent of gross sales in 1929, and 4.5 per cent in 1928. Local papers and direct mail were the media most widely used, with telephone, billboards, broadcasting, and handbills following in the order of their importance.

The majority of firms reporting considered their window display facilities an important means of advertising, and changed their windows once a week at least. A little less than half (47 per cent) of the firms reporting found it unnecessary to move their stock by means of special sales. The other 52 per cent, however, held sales monthly, quarterly, or twice a year.

Home Demonstrations Bring Sales

The home demonstration was credited as resulting in 60.7 per cent of radio sales by the firms reporting. Many firms, however, the bulletin states, have come to rely on home demonstrations so heavily that they neglect to "sell" the prospect, relying on the free demonstration to do it. They fail to figure the cost in trucking, injury to the radio sets, replacement of tubes, etc.

Permitting models to remain in homes for several days on the assumption that if given time the set will sell itself is a practice from which most dealers are getting away, the questionnaire replies revealed.

As alternatives, the following plans were found to be in use: (1) a flat fee for demonstration which may be credited to the prospect's account upon purchase; (2) a contractual agreement, the purchaser making a down payment or deposit and the set being installed "on approval." Before the end of a trial period the set may be exchanged for

another, but the deposit is forfeited if a sale is not made.

(3) The above plan may be modified on a "satisfaction or money back" basis, limiting the trial period to a very few days; (4) a charge, sufficient to cover actual material, labor, and cost of demonstration, may be made for erecting an aerial, with return of only part of total charge if set is not accepted.

Among financial problems of radio retailers, the instalment question was most important, the questionnaire brought out. Out of 33 dealers consulted, only one, an electrical appliance house, did an all-cash business. The remaining 32 firms made an average of 80 per cent of their radio sales on an instalment or deferred payment plan.

Answers to the questionnaire also showed that even the midget sets, although they involved a smaller expenditure, were often paid for on instalment plan.

Seventy-three per cent of the firms granting deferred payments financed such sales either themselves or through

the medium of their own bank; 21 per cent used a finance company's service, and six per cent utilized both means of financing.

Although difficulty with instalment accounts might have been expected to increase in 1930, the questionnaires showed that only in two communities did the necessity for repossession increase an appreciable amount.

Eighteen of the firms queried supplied to the Department of Commerce complete figures enabling a detailed break-down of their operating expenses to be made. Although the number of firms doing this is not large enough to make the statistics important, still they were submitted for the value they possess from an informative viewpoint.

Salaries Important Cost Item

More than 44 per cent of the total operating expenses of the 18 radio merchants was that of salary and commission. The next largest item was that of store light, heat, and rent, which averaged 14.4 per cent; 9.9 per cent of the total operating expense was that of advertising; 5.4 per cent went for free servicing; 5.3 per cent for taxes and depreciation; 4 per cent for delivering, and 16.4 per cent for all other overhead.

The radio stores proper (as contrasted with electrical appliance stores, de-

partment stores, music stores, furniture stores, jewelry stores carrying radio) reported that 54.9 per cent of their total operating expense was that of salary and commission, almost twice as much as their 1929 expense for the same item.

Total radio sales by types of dealers in 1929 are shown in the following figures, compiled by the Electric Equipment Division: exclusive radio, 35 per cent of the total sales; music, 11 per cent; furniture stores, 10 per cent; automotive, 8 per cent; department stores, 8 per cent; power companies, 6 per cent; electric merchandise, 5 per cent; hardware, 5 per cent; contractors, 3 per cent; drug, general merchandise and jewelry stores, each 1 per cent, and miscellaneous stores, 6 per cent.

GENERAL ELECTRIC UNITS PLACED IN SANITARIUM

HARTFORD, Conn.—The Newton-Parsons Co., General Electric refrigerator distributor for Hartford County, recently installed a CS-450, an SS-62 and two PS-417 refrigerators at the Cedar-crest Sanitarium, Newington, Conn. All are to be used for food storage, according to L. H. Webber, commercial head.

G. E. MAN WILL GET WASHINGTON AWARD

SCHENECTADY, N. Y.—William D. Coolidge, associate director of the General Electric research laboratory, will be given the Washington Award for 1932 at a dinner in the Hotel Sherman, Chicago, Feb. 24.

The award is given in recognition of "devoted, unselfish and preeminent service in advancing human progress" by the Western Society of Engineers on recommendation by a commission.

FRIGIDAIRE OFFICES IN SAN FRANCISCO MOVED

SAN FRANCISCO—Offices of the Frigidaire Sales Corp. have been moved from this city to 5755 Landregan St., Oakland, Calif., across the Bay from San Francisco.

The move, which was made Feb. 1, was for the purpose of consolidating the company's operations at one central point, according to G. W. Shane, Pacific Coast sales promotion manager.



SERVEL Model 100-B—1160 lbs. ice equivalent daily—shrouded air-cooled condenser—triple Vee-belt drive—completely automatic.

+ A Rich Market—Watch Commercial Electric Refrigeration! Here's one industry that has defied depression—made tremendous gains. Yet only a small part of the vast market has been sold. And every month—every week—brings forth new developments to increase sales potentialities in this practically untouched field.

+ An Advanced Line—With SERVEL's powerful, efficient 1932 models, you can fill every demand for modern Commercial Electric Refrigeration. These units—stronger, sturdier—embody exclusive advancements that make them easier to sell—simpler to install—more economical to operate.

+ Sales Assistance—Aggressive sales promotion and dominant advertising have created a nation-wide demand for SERVEL Commercial equipment. In your own city, you will find live prospects waiting to be sold the improved refrigeration they already know about.

+ Year-Round Profits

As a SERVEL Commercial Dealer, you will enjoy better business—on an all-year basis. Your salesmen will keep producing—summer and winter—without seasonal let-ups. All this—with only a small investment for floor stock. No added rent! No increased overhead! No extra salaries!

SEND FOR FULL INFORMATION

Learn more about the rich opportunity that lies immediately ahead for Commercial Electric Refrigeration. Find out how easily—how quickly—you can enter this profitable field without disturbing your present set-up. Get the complete "inside story." Write to SERVEL Sales, Inc., Evansville, Ind.

SERVEL

COMMERCIAL REFRIGERATION

■ NEW-STYLE CONDENSERS: Interchangeable; highly efficient . . . MULTIPLE VEE-BELT DRIVES: Insuring uninterrupted service and quiet operation . . . SIMPLIFIED CONTROLS: Positive action; fully automatic . . . ECONOMICAL OPERATION: Low-speed compressors; minimum current consumption . . . RUGGED PRECISION CONSTRUCTION: Built for long use; compact and accurate . . . WIDE RANGE OF MODELS: With capacities of 130 to 1,510 lbs. ice equivalent per day.

General Electric Distributors Declare War on Sales Resistance



General Electric refrigerator distributors recently planned spring sales at a meeting in the Miami Biltmore hotel, Coral Gables, Fla.

WHITE MOUNTAIN BRINGS OUT 1932 ELECTRIC LINE

NASHUA, N. H.—A new line of household electric refrigerators has been placed on the market by the Maine Mfg. Co., Nashua, N. H., for 57 years a producer of ice refrigerators under the White Mountain trade-mark.

Five models, ranging from 4½ cu. ft. to 11 cu. ft., and styled from a survey of 1,000 housewives, comprises the line. Sliding shelves, broom-high legs, a vegetable crisper, rounded corners, chromium hardware, a unit concealed in the top are features of the cabinets.

An extra profit is given the dealer on refrigerators in colors to harmonize with the kitchen.

The cooling unit is vibrationless, and is the result of five years' research by the engineers who cooled the Holland Tunnel, R-K-O theatre, Chrysler Bldg. Franchises are now being offered to dealers.

JOINS GIBSON DISTRIBUTOR

CHICAGO—H. A. Stevens, until recently connected with the Copeland Refrigerator Co., here, has now joined L. V. Whitney, Inc., Gibson distributor.

Serum Refrigerator Placed in Pharmacy

HARTFORD, Conn.—A 6-cu. ft. special cabinet, with doors on front and back, has been installed in the pharmacy of the Hartford Retreat, private institution for mental cases, by the Newton-Parsons Co., General Electric distributor.

The refrigerator is designed for the storage of serums, specimens and medicinal preparations. One door opens on a corridor while the other, on the opposite side of the cabinet, makes its contents available to workers within the pharmacy department, according to L. H. Webber, commercial manager for Newton-Parsons.

KELVINATOR MODEL USED IN COOKING SCHOOL

NEW HAVEN, Conn.—A Kelvinator refrigerator occupied the center of the stage at a cooking school conducted by the *New Haven Journal-Courier*, morning newspaper, Feb. 9 to 13.

The refrigerator was supplied by the General Service & Equipment Co., 1080 Chapel St., Kelvinator dealer.

MANUFACTURERS RESERVE SPACE IN AMERICAN FAIR

ATLANTIC CITY, N. J.—The third American Fair, annual national merchandising exposition, to be held here July 16 to Aug. 28, will include the exhibits of major industries in at least eight important fields, it was announced last week by Lincoln G. Dickey, general manager of the Atlantic City auditorium.

The fields under which exhibits of major industries will be grouped include: machinery and small tools, food products, electrical appliances, transportation, fine arts for the home, textiles and fabrics, home furnishings, and public utilities.

Mr. Dickey estimates that 1,200,000 persons will witness the Fair during its 43-day showing, basing his figures on the recorded attendance in 1930 and 1931. An experimental area or laboratory on the exposition floor will be set aside to make tests of consumer responsiveness to products this year.

Approximately five acres of floor space will be occupied by the exhibits.

"Until the institution of the American Fair, no successful effort was ever made in this country to establish a recurrent general national exposition participated in by representative companies of all the nation's industries," said Mr. Dickey.

Among companies who exhibited last year and have asked for space in 1932 are: Chrysler Corp.; DeSoto Motor Corp.; Dodge Bros. Corp.; Frigidaire Corp.; General Electric Co.; Hoffman Beverage Co.; Singer Sewing Machine Co.; the Steiff Co., maker of sterling silverware; White Motor Coach Co.

NORGE DEALERS ATTEND MEETING AT INDIANAPOLIS

INDIANAPOLIS—More than 100 Indiana dealers and salesmen for the Norge refrigerator attended a sales and advertising conference last week at the Sevierin hotel, with the Gibson Co., Indiana Norge distributor, as host.

R. E. Densmore, Chicago, western regional sales manager for Norge, told the assembly of 1932 sales and advertising policies, assisted by the following men: H. M. Terry, Milwaukee, representing the Cramer-Krasseit Co., advertising agency; J. E. Oliphant, Chicago, district sales manager, and J. A. Stirling, Chicago, sales promotion manager.

COPELAND OUTLET MOVES

BALTIMORE—The refrigeration department of Eastern Hardware Supply Co., Baltimore distributor for the Copeland electric refrigerator, has been moved to 106 Clay St., a location nearer the heart of the retail shopping district.

The refrigeration department had been located at the general headquarters of the company, 38 South Charles St.

District Increases Sale Of Copelands 64%

NEW HAVEN, Conn.—An increase in Copeland refrigerator sales in Connecticut and western Massachusetts of 64 per cent during the year 1931 was reported at a regional convention in the Hotel Taft, here, Feb. 12. More than 200 dealers attended the meeting, sponsored by the New Haven Electric Co., distributor in the area.

The increase followed similar gains of 36 per cent in 1930, and 109 per cent in 1929, according to Thomas G. Tynan, sales manager, who presided at the business sessions.

W. D. McElhinny, vice president in charge of sales for Copeland; Carl Burton, eastern district manager for the Commercial Investment Trust, financing organization, and A. L. Bogue, assistant sales manager in charge of Copeland commercial sales were among the speakers.

Officials of the distributing organization who appeared on the program were H. A. Lines, general manager, C. F. Ganter, refrigeration manager, and F. M. Dinan, advertising manager.

DAYTON EQUIPMENT FIRM MADE MAYFLOWER DEALER

DAYTON—The North Shore Electric Equipment Co., of Lynn, Mass., has just taken a franchise as dealer in Mayflower electric refrigerators, according to announcement by the Trupar Mfg. Co., here.

The company has been in business since 1924, with annual refrigeration sales running in the neighborhood of \$1,000,000, it is reported. Back of the concern are Sunberg & Smith.

METAL SAW & MACHINE CO. INSTALLS COOLER

HOLYoke, Mass.—Beaven-Kelly Home for Aged Men, maintained here by the Roman Catholic Church, has been equipped with a two-compartment walk-in cooler and ice-making outfit by the Metal Saw & Machine Co., Inc., of Springfield.

The refrigeration unit is of the company's own construction and is powered with a 1½-hp. motor.

FRIGIDAIRE SHOWROOM IN BALTIMORE TO MOVE

BALTIMORE—The Frigidaire showroom which has been maintained by the Baltimore branch, Frigidaire Sales Corp. at Mulberry and Howard Sts., will be moved March 1 to larger quarters at 527 North Howard St.

CHAIN APPLIANCE SALES IN '29 TOTAL \$191,547,403

WASHINGTON, D. C.—Retail sales by chains in the household appliance field amounted to \$191,547,403 in 1929, according to a report derived from the Census of Distribution and published by Robert J. McFall, chief statistician for distribution.

Of the 262 chains selling electrical or gas appliances or both in this country, 219 are utility-operated chains (which sold 73.98 per cent of the total sales of all household appliance chains) five manufacturer-controlled chains or sales branch systems, three leased-department chains, and one organization selling from house to house.

Approximately 150 of these chains sell electric appliances only, their sales amounting to \$115,697,787, or 60 per cent of the total; 44 chains sell gas appliances only, with aggregate sales of \$20,098,352, or 10 per cent; the remaining 30 per cent of sales is made by 64 chains selling both gas and electric appliances.

Electric appliance chains reported that of their total sales of \$115,697,787, 15 per cent were refrigerator sales alone; gas appliance chains reported refrigerator sales to amount to nearly 18 per cent of all sales; chains selling both gas and electric appliances reported refrigerator sales to amount to 11 per cent of their total.

About 70 per cent of the electric appliance chain total is accounted for by motor-driven devices including refrigerators. Ranges, heaters, electrical supplies, radios and service charges account for the remainder.

Gas stoves, water heaters and refrigerators account for nearly 70 per cent of gas appliance chain sales. Other gas appliances account for 22 per cent, while the remaining eight per cent is attributed to plumbing equipment, home furnishings, and service charges.

Commodity reports for chains selling both gas and electric appliances show that 41 per cent of total sales is derived from the sale of electrical appliances and supplies, including radios, as compared with approximately 30 per cent from gas appliances and supplies. Service charges amount to four per cent, miscellaneous commodities to 13 per cent, and refrigerator sales to 11 per cent.

Personnel of the 262 chains includes far more men than women, the report brings out. A total of 20,635 men, as compared with 3,450 women, are employed as sales people. Salaries, wages, and commissions aggregate \$33,578,560. In addition, a total yearly payroll of nearly \$36,000,000 pays for the part-time service of 3,746 additional men and 1,212 additional women.

Salaries and wages require \$18.71 out of each \$100 of net sales, statistics show. In addition, household appliance chains pay \$2.57 of each \$100 net sales for rent or rental value of retail premises, and \$35.24 from each \$100 for total operating expenses.

To a Refrigerator Manufacturer
who wants SALES
Here's a REAL Connection!

One of our clients, located in Albany, New York . . . well organized, thoroughly experienced, familiar with department store trade, well acquainted with leading buyers . . . desires to act as factory representative of a well-made, low-priced electric refrigerator, selling direct from factory to dealer. Compensation to be on a commission basis. If your product is right, if you are in a position to sell direct to the retailer (all shipments to be made draft bill of lading attached, except in the case of highly rated accounts such as department stores), the appointment of this aggressive sales organization will prove a most profitable connection—assuring a satisfactory volume of business with well rated dealer outlets through New York State, exclusive of New York City. Address W. S., care of Peck Advertising Agency, 271 Madison Avenue, New York.

How To Sell Refrigerators

As Told By Charles Fitz-Gerald, Frigidaire Star

By Phil B. Redeker

DETROIT — "Under present conditions, the big job for a salesman who is handling a quality product lies in creating buyers," believes Charles Fitz-Gerald, one of the star salesmen of the Frigidaire Detroit branch.

Creating in the prospect not only the desire, but the demand for a quality refrigerator has been the basic principle behind Fitz-Gerald's selling methods. That they have been successful might be attested to by his membership in the Frigidaire B.t.u. Quota club (organization for star quota-breaking salesmen) for the past three years.

Selling refrigeration is not "selling a bag of candy," Fitz-Gerald asserts. It is a serious, intelligent transaction on the part of both salesman and prospect.

"There isn't any question but that the ordinary home-owner has a desire for a service that will protect the most valuable asset his family has—its health, and at the same time give the family untold convenience," Fitz-Gerald states.

Wants Lifelong Service

"However, the present-day prospect wants to be assured not only that the refrigerator will bring him safety, convenience and savings, but that it will do all these things over a life-long period of time.

"That is why the salesman must be able to tell the story of the quality features of his product, as well as to explain to the prospect the money-savings and food-protection factors," says Fitz-Gerald.

The matter of food preservation is a point which Fitz-Gerald capitalizes upon when he finds an interested party in the course of a morning's cold canvass. The process of quickly proving or reviewing the absolute necessity of modern methods of refrigerating food-stuffs amplifies the desire and need for refrigeration probably in the mind of the home-owner.

Uses Homemade Sales Book

Fitz-Gerald goes over this opening part of his sales talk very smoothly, using a notebook (which he made up himself) to illustrate his points. This notebook contains Frigidaire literature, newspaper clippings concerning food poisoning, government figures on proper temperatures for the storage of food-stuffs, and pictures which emphasize points on food preservation in a way far more effective than any figures or literature.

If the woman seems interested enough on first contact to want to go into the subject further, Fitz-Gerald will launch into the matter of savings. In this he uses the technique of getting the prospect to present figures on her household as proof of the money-saving qualities of the electric refrigerator.

Gets Story of Expenses

He gets the housewife to tell the amount of money which she spends each week for ice, this being admittedly a "dead weight" expense. By asking careful leading questions, he can draw out good estimates on the amount of her food losses through spoilage of perishable goods, and as to possible savings which she might make through means of quantity purchases and weekly stocking of the refrigerator.

If the prospect is willing, Fitz-Gerald has her fill out a printed form which provides space for the various savings suggested. In so doing she has set down conclusive evidence, the work of her own hands, that the refrigerator pays for itself.

Shows Average Savings

To show the prospect that "her figures aren't lying," Fitz-Gerald will present figures on savings gleaned from more than 130 users, showing an average saving of \$9.96 per month gained by changing their method of food storage from ice to an electric refrigerator.

Making a date for an interview at night is the all-important next step in the selling procedure.

"Better than 90 per cent of the sales are made when both parties are present, and I make my appointments with this fact in mind," says Fitz-Gerald. "People seem more open-minded in the evening right after dinner time than during any other time of the day," he says. "That is the time to do your real selling."

"Getting them to the showroom is important. If you are proud of your product and anxious to show it, it will help to create a favorable attitude towards the product on their part."

"At the showroom I let them test for themselves the points of quality in the product which I have told them about. I let the man do the 'hammer' test to demonstrate the strength of the porcelain, and I allow him to bang the ice cube tray around to show the character of the electrically-treated aluminum used in the construction of the trays."

"Anything which can be done to gain the confidence of the prospect will increase the chances for a sale 100 per cent. If you can get the prospect to the point where he will rely on your experience in refrigeration to guide him

in his purchase, the sale is as good as made."

Once by the sales-resistance barrier "we can't afford," which can be hurdled by the means suggested above, showing the prospect that "he can't afford to be without a refrigerator," Fitz-Gerald centers his efforts on the quality argument, to convince the prospect that the refrigerator which he is attempting to sell will bring "secured service."

Although this line of sales argument concerns itself with a good many mechanical and constructional details, Fitz-Gerald still centers his story on the wife, because, he points out, 80 per cent of the refrigerators he has sold have been on the word of the wife.

Stresses 3-Year Guarantee

Fitz-Gerald stresses the three-year guarantee on the cabinet, the fact that the interior will not be stained even by acids, that the interior is easily cleaned, that the box is constructed to stand up under heavy abuse, or even a flood; of the manner in which the material of which ice trays are made is hardened.

He lays great stress on the fact that he is selling a refrigerator with a twin-cylinder compressor, capable of taking care of the heaviest load that the hottest summer days could impose.

"A few years ago the purchaser of an electric refrigerator had in mind only the matter of keeping food, but as years have gone by the public is more and more expecting a refrigerator that will not only keep their foods, but which will make ice cubes and frozen desserts in a short space of time, which will last indefinitely, and which will keep foods in perfect condition despite frequent opening of the door and temperature conditions in the kitchen far out of the ordinary," Fitz-Gerald points out.

The hydrator, an added feature of the refrigerator, is another big talking point to be considered when the woman is being addressed, the Frigidaire star says. The salesman should realize how valuable crisp, fresh vegetables are in the making of salads and other types of dishes.

Construction Features Used

Points about the construction of the cabinet which eliminate inconveniences, such as the exterior placement of the cold control and the height of the bottom shelf should be brought up when the prospect's interest is growing high, says Fitz-Gerald.

"If you want to sell a quality refrigerator, keep pounding home the fact that a refrigerator will last only as long as the quality which is built into it," he would advise salesmen. "If your company is using a special kind of wood in the framework, or a specially treated porcelain for its interior, and is sealing the insulation by the best-known means possible, take advantage of these points by acquainting yourself with them, and then selling the prospect on them."

Prospects Know Quality

"Don't think that the woman doesn't know what quality means."

"Due to conversation and gossip with users of inferior equipment, she realizes better than anyone the value of quality. It is generally the woman who is the good 'shopper,' who has to be sold on the product itself as well as the service it will offer."

The "I can't afford it" sales resistance argument is no longer a valid one, because a "refrigerator pays for itself through savings" and purchase can be made on terms which involve no great original amount, says Fitz-Gerald.

Most people realize this, and turn to what seems to be a more logical piece of sales resistance, the fact that they "really don't need the refrigerator in the winter, and can wait until spring or summer."

"It's up to the salesman to show them that it is always summer in the kitchen, and that many times temperatures in the kitchen are greater during winter months than during the hottest summer days."

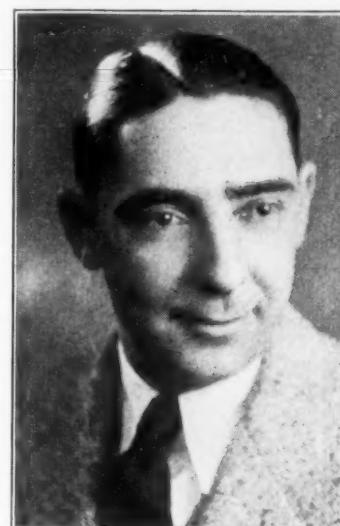
Use the User

"The best way I know of to do this is to have them stand in one section of the house, making them conscious of the temperature of that room. Then lead them into the kitchen, where the temperature will inevitably be much higher. Sometimes you can actually prove this by use of a small house thermometer."

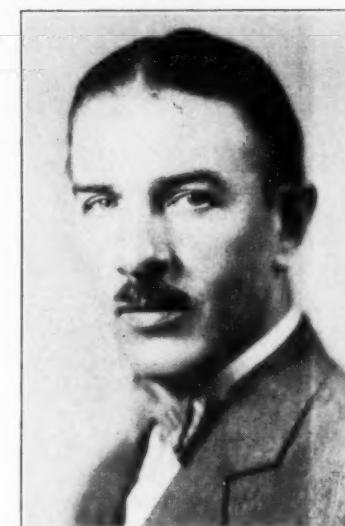
Continued contact with the prospect who becomes a user will develop a source of future prospects which are necessary to the future selling life of every salesman, Fitz-Gerald points out. On the day of the installation of units which he sells, Fitz-Gerald goes to the buyer's house himself to see that the refrigerator was installed in perfect condition, and to lend advice on the proper use and care of the refrigerator.

He often makes friendly calls, which bring him hosts of unsolicited "tips," as well as those which come on "User's Bonds," blank lists given to users who fill them out with prospect's names and then receive \$5 for each name sold.

Join Kelvinator Field Staff



M. S. BANDOLI
Recently appointed Kelvinator district manager at Decatur, Ill.



GEORGE R. EWALD
District manager in charge of Kelvinator Pittsburgh territory.

SMALL TOWN DEALER GETS 18 SALES IN TWO MONTHS

LEMARS, Iowa—W. C. Huxtable, who became an electric refrigeration dealer late in November, 1931, sold 13 household Frigidaires in December and five in January besides a number of commercial installations. This city has a population of 4,500.

Ten of the household models sold were of the 6-cu. ft. size, which Mr. Huxtable believes is best when selling a customer on food buying economy.

Brennan Lays Plans for Range Sales

PHILADELPHIA—John Brennan, head of the new General Electric Hot-point range division of Judson C. Burns, Inc., distributor, has started on a tour of Burns dealers to lay plans of procedure for the 1932 sale of the ranges. Maurice Webb, for more than a year in the sales promotion department of the Burns organization, has been transferred to the range division as an assistant to Mr. Brennan.

KELVINATOR ADDS 3 TO ECONOMICS STAFF

DETROIT—Three new members of the Kelvinator factory economics staff have been announced by Vance C. Woodcox, sales promotion manager. They are Miss Pauline Peacock, Miss Dorothy A. Covert, and Mrs. Marie Suttles.

Miss Peacock, a graduate of Iowa State College at Ames, has taught school at Sioux Falls, served as educational director of the Ice Cream Institute in Chicago, and has been associated with the Chitwood School of Cookery and the Chicago Tribune School of Cookery.

Miss Covert is also a graduate of Iowa State College, and has had experience as director of home economics before joining Kelvinator.

Mrs. Suttles, a native of Jamestown, Ohio, came to Kelvinator from the J. L. Hudson Co., Detroit. Prior to that connection, she had served with Standard Brands, Inc., doing food show and service work; Lipton Tea Co., and Rumford Baking Powder Co.

MAINE UNIVERSITY BUYS KELVINATOR EQUIPMENT

ORONO, Me.—All buildings of the University of Maine have now been equipped with Kelvinator refrigeration, reports the Bangor Hydro Electric Co., Kelvinator distributor.

The six buildings in which Kelvinator equipment has been installed include Hannibal Hamlin Hall, men's dormitory with a capacity of 200 students; Balantine Hall, housing 150 girls; "Beta" house, fraternity house; Merrill Hall, new home economics building; Rogers Hall, new dairy building; new horticultural building.

YOUR BIG PROFIT is in selling the Electric Refrigerator plus - - - that is 2 YEARS AHEAD

Every one of your customers will see the advantage of buying the Lectrik-Ice . . . with striking improvements, that put it two years ahead of competition:

HUMIDITROL. The natural moisture is retained in foods by Balanced Humidity . . .

SELF-DEFROSTING. Not necessary to shut down to allow the frost insulation to melt off the coils . . . the new Lectrik-Ice automatically defrosts at every cycle.

NEW ECONOMY . . . actual tests show far less running time for compressor because of the self-defrosting feature.

CONVENIENCE. New ribbon type shelves . . . porcelain shelf supports, cannot rust . . . greater storage space . . . broom high legs . . . buffet top . . . rubber ice trays, etc.

NEW BEAUTY. Conservative modernistic design . . . graceful lines and attractive hardware . . . Bakelite door trim . . . chromium tray fronts.

INBUILT QUALITY for a lifetime of service. Oversize compressor gives big capacity at lower speeds . . . quiet, dependable service.

COMPLETE LINE, a size and model for every purse and purpose.

LIST PRICES LOW, and discounts equal to those allowed by any manufacturers.



Mail this TODAY - - - - -

Uniflow Manufacturing Co.,
Department F, Erie, Pa.

Gentlemen:

Send me full details of the new self-defrosting Lectrik-Ice Humiditrol—the Electric Refrigerator plus—with your proposition for

Distributor Dealer

Your Name

Company Name

City

Manufacturers of LECTRIK-ICE

Whitwell Outlines Merchandising Policies of Utilities

Advise Hardware Dealers on Methods Of Selling Electrical Appliances

By George E. Whitwell*

Chairman, Pennsylvania Utilities Merchandising Committee

THE can be no doubt in anyone's mind that today, perhaps more than at any other time, all helpful selling methods must be brought into play. Volume of sales will go to him who exercises the most ingenuity, who best appreciates the workings of the human mind and who is most alert and hard-working in his efforts to separate potential customers from the elusive dollar.

Perhaps I am not too optimistic in feeling that you and I can agree on still other things. Perhaps you have heard the latest reported conversation between an optimist and a pessimist. The optimist said, "By summer we will all be beggarly." The pessimist replied, "From whom?" I don't want to be that kind of an optimist; neither do I want to be the Pollyanna kind who fails to see any trouble. But, facing the facts, I think that you and I can agree on some other points.

First, people love to gossip and, gossiping, to stray at times pretty far away from the facts. We all have experienced the damage that comes from "whispering campaigns," which bring a train of exaggeration, misstatement and half-truths. I am inclined to believe that much of the misunderstanding that exists today about utility merchandising is because of careless statements.

Believe Too Many Things

Second, as has been said before, "So many people know so many things that are not true." Time and again you and I have experienced trouble that has come only from an acceptance by some person or persons of a condition which neither did nor could exist.

I am reminded of the widely circulated statement of a high government official that the utilities were gouging the nation of \$500,000,000 annually in residential electric revenues. The facts showed that for the year in question the total of these revenues was only \$600,000,000. The two figures are irreconcilable; yet a stamp of accuracy has been put upon an inaccurate statement and damage has resulted.

Accurate Information Missing

Third, too little accurate information has been disseminated by the utilities about their practices and policies. As a simple example, it is well known to utility people, although generally unknown to others, that while the costs of household commodities have greatly increased during the last 20 years the cost of electricity has steadily decreased.

To buy a dollar's worth of 1913 electricity only 70 cents are needed today, while despite present business conditions, the average cost today of other commodities is considerably higher than it was in 1913. Furthermore, it is not commonly known that the average bill for domestic electricity in Pennsylvania is only 10 cents a day—and for a dime you cannot buy one pack of any popular brand of cigarettes. I think you and I can agree that there has been an absence of authoritative information on many utility matters.

Acquaintance Lacking

Fourth, the utilities and other retailers of gas and electric merchandise have not known one another. This has been caused undoubtedly by failure on the part of the utilities to take the initiative in bringing about an understanding of acquaintanceship with dealers in gas and electric appliances.

The object of this morning's talk is to bring to you from all of the utilities in the State of Pennsylvania as many facts regarding utility merchandising as can be properly presented in 40 short minutes. It is an attempt at acquaintanceship with you. It is a step toward a better understanding of the big problem of retail distribution of gas and electric appliances.

Traces Lighting Progress

Most of you can recall the early days of the electric industry. Electricity was generated in small central stations. Power failures were frequent and of long duration. At that time lighting was the sole application of electricity. Only families of substantial means had electric lights and those lights were of low candle-power. The service was unreliable and costly. People didn't understand it and, as a consequence, were afraid of it. The public was slow to accept it. The investment of capital in central stations was the wildest kind of speculation.

You have seen the progress since those early days. Giant generating plants and hydro-electric developments have replaced the small local stations. Cities and states have been interconnected in the interests of economy and to assure constant service. Today the

*Address at thirty-first convention of the Pennsylvania and Atlantic Seaboard Hardware Association, Inc.

investment in electric utilities has exceeded the staggering total of ten billions of dollars. Similar developments have been made in the production and distribution of gas.

It was recently demonstrated how essential an unfailing supply of electricity has become to the life and comfort of the nation. At the time of the death of Thomas Alva Edison, it was suggested that all current be turned off for one minute in memory of the great man who invented the electric light. This would have been a fitting tribute and sounds simple enough. But on second thought even the layman was able to foresee the suffering and possible death that would have resulted. Consider hospitals alone. Sudden darkness in operating rooms. Cessation of elevator service, of refrigeration, of laboratory work.

As the utility industry developed and more efficient and economical methods of generation, transmission and utilization were evolved, we found ourselves some 10 years ago somewhat in the position of a manufacturer with potential production facilities in excess of the immediately available consuming market for his product.

Equipped for Peak Load

The average person does not realize that the costs of power and gas are established more by the acts of the consumer than by the efficiency of the producer. The tremendous investment in equipment and the man power required to satisfy peak demands become a burden in the absence of steady consumption. The controlling factor is not in the generating plant. It is at the other end of the line—a switch or a valve in the consumer's premises.

Each day interest and other fixed charges on billions of dollars of investment must be earned. Let me assure you that the hundreds of thousands of owners of utility securities expect and are entitled to a regular return on their investments. In every four families in the United States, there is one person who is an owner of utility securities.

The utility was, and is, able to render an ever-expanding, ever lower-priced service only with a continually increasing use of gas and electricity. So the residence market must be sold and real selling effort has been necessary. It has been difficult to convince the housewife who does not use electrical household helps that she is working at a wage of a cent or so per hour.

Our present economic situation well portrays the fallacy of mass production in the absence of mass consumption. You all know what it is to have "dead stock" on your shelves. Such stock is usually dead because no one has made a market for it. So with us wide distribution has been essential if our rates were to be reduced to a level where electricity could be used freely by the family of small means.

Must Popularize Appliances

The assurance of wide-spread consumption has been likewise essential before we have been able to undertake additional tremendous developments, which in their turn have brought about further reductions in our costs and in our rates for service.

New uses for electricity have been invented but the public has been slow to appreciate their conveniences. We have discovered that if these uses are to receive wide acceptance, the burden of popularizing them has been and still is upon us. Women hesitated to discard the old reliable flat-iron in favor of the newfangled electric one. They had grave doubts that a vacuum cleaner would actually remove dirt from their carpets.

Electrified Hardware

In turn, the washer, gas and electric refrigerators, the new automatic gas ranges and dozens of other appliances had to be promoted. Meanwhile other industries, driven by a natural competitive urge, were instilling thoughts of high cost and inefficiency in the minds of our prospective customers.

It is interesting to observe that many of these appliances are really electrified hardware. Yet 10 years ago it was a rare thing to find a hardware dealer who would gamble even in a small way on the sale of electrical appliances. In order that you may understand what has gone on in the past, I ask what retailer or group of retailers would care today to aggressively promote the sale of air

Principles of Utility Merchandising

THE following eleven principles covering the merchandising of electric appliances, recently adopted by the Pennsylvania Utilities Merchandising Committee as compulsory for all utilities in the state, were announced Feb 9 by George E. Whitwell, in his speech to the convention of the Pennsylvania and Atlantic Seaboard Hardware Association.

Mr. Whitwell, vice president in charge of sales of the Philadelphia Electric Co., is chairman of the merchandising committee; other officers of the committee are: P. H. Powers, 14 Wood St., Pittsburgh, vice chairman; and A. B. Millar, 703 Telegraph Building, Harrisburg, Pa., secretary.

(1A) Gas appliances offered for sale shall bear the seal of approval of the American Gas Association Testing Laboratory.

(1B) Electric appliances offered for sale shall be of such manufacture as to assure safe and dependable service.

(2) The utility shall sell only gas and electricity consuming appliances and the auxiliary equipment necessary for their complete installation and use.

(3) a. The utility shall recognize as a proper retail cash price of any appliance, an amount that allows a logical merchandising outlet (selling at that price) a gross profit not less than is customarily obtained from its discount on such item.

b. When the utility establishes a special price on an item, it shall provide that such item may be purchased by any logical merchandising outlet at its customary discount (applied to such special price), subject to the supplier's usual credit, franchise, sales, and other conditions applying to the regular sale of that item.

c. The foregoing is not intended to apply to shop-worn, damaged, repossessed, or obsolete items.

(4) The utility shall not accept the exclusive sale of an appliance unless equivalent items are available to other dealers.

(5) No premiums shall be given, nor trade-in allowance made in connection with the sale of any appliance, unless all agencies selling that same appliance are offered participation. Manufacturers' national campaigns, based on either of these inducements, are to be discouraged.

(6) Coordinated advertising should be developed by the utility and other dealers with the view of making available to the dealer all reasonable cooperation in advertising, displays, and sales promotion.

(7) Down payments, carrying charges, and the length of instalment terms shall permit of fair competition. Small appliances, if sold on instalment terms, shall carry an adequate finance charge. Manufacturers' national policies, when inconsistent with sound practice, are to be discouraged.

(8) On any combination bill, rendered by a utility, the amount due for merchandise shall be clearly segregated from the amount due for utility service.

(9) Compensation of utility appliance salesmen shall be such as to attract and hold qualified and responsible representatives. The activities of all salesmen should be controlled so as to avoid misrepresentation and other unfair selling tactics.

(10) In extending its services to new customers, the utility shall not make the purchase of appliances from any given source a factor in the situation.

(11) The utility shall segregate all merchandising accounts from operating accounts. The presentation to the public of appliances and uses not having reasonable consumer acceptance, is a promotional activity and as such shall be charged to the appropriate operating account in accordance with the State Uniform Classification of Accounts.

conditioning systems for the home? Today air conditioning is practically unknown to the public. It is predicted, however, that in the near future it will be generally accepted and used.

As the utility, during the past few years, through its promotion of new uses for gas and electricity and through its merchandising of appliances has brought a better realization of the value of electric and gas conveniences there has been created a substantial market for those things.

The profit possibilities in the sale of such merchandise has become attractive to many groups of retailers. Merchandise, originally pioneered almost exclusively by the utilities, is now sold by department stores, furniture stores, hardware stores, jewelers and druggists. Chain groceries handle it. Mail-order and other chain stores find it profitable.

Distribution Complex

Then there are contractors and specialty storekeepers whose livelihood depends entirely on the sale and installation of gas and electric appliances. Many manufacturers and distributors sell direct to the consumer through highly trained, aggressive sales organizations. The retail census recently made by the Department of Commerce indicates that there are at least 35 different kinds of stores in which electrical merchandise is sold.

As a result we have a very complex system of distribution, burdened with more difficulties than usually go with competitive business. We have the dumping of distress merchandise, excessive trade-in allowances, sensational premium offers, inadequate down payments, uneconomic instalment terms, and selling at the front door. We have manufacturers functioning as wholesalers and both manufacturers and wholesalers functioning as retailers.

Cites Sales Figures

In Pennsylvania the retailers which have just been mentioned, depending upon whether their territory is rural or urban, sell on the average from around 70 per cent to about 90 per cent of all appliances. The balance, or 10 per cent to 30 per cent depending upon the territory, is sold by the merchandising departments of utilities.

Yet the utilities, although only a minority factor in the situation, are commonly thought of as the "bad boys" in this picture. On the contrary, since our efforts result in the sale of only 10 per cent to 30 per cent of all appliances, without which there can be no gas or

sales records of associations and manufacturers.

In the three years—1929, 1930, and 1931—the number of irons sold dropped from 3,150,000 to 2,362,000 and then to 1,771,000. I am speaking now of the units sold—not the dollar value. Toasters dropped from 1,540,000 to 1,263,000 and last year to 820,000. Electric cleaners decreased from 1,253,000 units to 960,000 and in 1931 the sales dropped to 686,000.

These figures are significant when it is realized that during these three years the utilities had diminished their merchandising efforts on these items.

As a further indication of this trend I submit the experience of one of the large Pennsylvania utilities. This company's sales of washers, cleaners and irons were \$635,000 less in 1931 than in 1930. Your first thought might be that if the utility had suffered such a marked loss of business, other agencies must have enjoyed a substantial increase. An investigation disclosed that the facts are quite to the contrary. Manufacturers and jobbers reported that the total decrease in these items far exceeded that of the utility alone. Therefore all retailers must have suffered a corresponding decrease in sales. It is significant that when the utility places no particular emphasis on the merchandising of a particular appliance, the sales of that appliance by all retailers suffer.

There are two ways to sell merchandise. One is on a quality basis. The other is on a price basis. The utility, in its advertising and merchandising, endeavors to build up acceptance of appliances on a quality basis. Such practices stabilize the retail prices for all outlets. Without them the sale of appliances can well revert into a business where low price will be the important consideration, and the most successful dealer will be the one who can swing the largest job lots of inferior or distress merchandise.

Promotion Must Continue

Promotion must continue and a stabilizing factor is needed. Proper merchandising by utilities furnishes these essential factors. But there must be cooperation between all agencies if there is to result more business and more profit for all concerned. Well-informed members of various trade bodies shared this belief and a year or so ago brought about the formation of a Joint Committee to consider this subject. After several conferences, the National Electric Light Association and the American Gas Association published certain suggested principles to be followed by all those interested in the sale of appliances.

These national merchandising principles were a step in the right direction, but because of the large territory they had to cover, they could have little effect until given local application. Bearing in mind that a national situation is merely a multiplicity of local ones, the utilities in Pennsylvania have or will shortly announce individual policies which they will follow in the conduct of their merchandising operations.

These policies are binding on the utilities. They are suggested to other agencies. I want to repeat that last statement. These principles have been or will be adopted as a definite policy to which the utilities in Pennsylvania are committed. They are merely suggested to other agencies.

Quality of Appliances

On behalf of the utilities in the State of Pennsylvania, I am going to announce and define these principles so that you will be aware of the merchandising policies of your Pennsylvania utility.

The first of these principles has to do with the quality of gas appliances. Inasmuch as the gas industry is fortunate in having a means of determining the safety and general quality of appliances, it is agreed that gas appliances offered for sale by the utilities shall bear the seal of approval of the American Gas Association Testing Laboratory.

This principle contains a further clause to the effect that electric appliances shall be of such manufacture as to assure safe and dependable service. In this regard I would point out that the determination of the safety and dependability of appliances rests with each individual merchant. Whether or not irons, toasters, heating pads and so forth made to retail at \$1.00 or less are safe and dependable, is a moot question. We are sure that such merchandise carries little profit. It is largely used as a "come on" to promote the sale of higher-priced appliances. The utilities will continue to sell only merchandise of high quality.

Appliances Must Be Essential

The second principle binds the utilities to confine their selling exclusively to gas and electricity consuming appliances and the auxiliary equipment necessary for their complete installation and use. It means that the utilities will not sell ironing boards, pots and pans, or any other merchandise not directly essential to its service. This ill-advised practice was largely discontinued years ago, but the belief still prevails that utilities are conducting general stores. You now

(Concluded on Page 39, Column 1)

Whitwell Outlines Pennsylvania Utility Merchandising Policies

(Concluded on Page 38, Column 5)
have our assurance that we will stay in our own back yard. This principle does not apply, however, to such necessary equipment as attachments for vacuum cleaners and hydrators for refrigerators.

The third principle says that the utility shall recognize as the proper retail cash price of any appliance, an amount that allows a logical merchandising outlet (selling at that price) a gross profit not less than is customarily obtained from its discount on such item. This simply means that the utilities will maintain the manufacturers' list price when one exists. In cases where there is no list price the utilities will add to their cost of any appliance a sum that will result in a selling price with which the dealer can compete without loss of his customary profit.

It is sometimes desirable to reduce prices on new, current items during special campaigns. So there is a further provision that when the utility establishes a special price on an item, it shall provide that such item may be purchased by any logical merchandising outlet at its customary discount (applied to such special price), subject to the supplier's usual credit, franchise, sales, and other conditions applying to the regular sale of that item.

This means that the dealers' regular discount is protected when special prices are established and that the manufacturer or wholesaler will have to look out for other dealers when he wishes to conduct a special campaign with the utilities' participation.

No Exclusive Sales Agreements

You will understand, of course, that these methods of establishing prices are not intended to apply to shop-worn, damaged, repossessed, or obsolete items.

The fourth principle states that the utility shall not accept the exclusive sale of an appliance, unless equivalent items are available to other dealers.

This means that no unusual advantage can be gained by a utility in tying up appliances to the exclusion of other outlets, and manufacturers have been so informed.

In defining the word "equivalent" as used in this principle, we consider for example that a General Electric refrigerator is equivalent to a Frigidaire, a Bryant boiler is the equivalent of an American Ideal boiler, Easy and A. B. C. washers are equivalent.

Trade-in Allowances Barred

The fifth principle was adopted to correct a bad situation for which the utilities were not entirely responsible. It says that no premiums shall be given, nor trade-in allowance made in connection with the sale of any appliance, unless all agencies selling that same appliance are offered participation.

Manufacturers' national campaigns, based on either of these inducements, are to be discouraged. In the past certain manufacturers have announced nation-wide, extensively advertised campaigns, offering premiums or excessive trade-in allowances without consulting their dealers. Utilities handling such merchandise were forced to participate in spite of their reluctance to do so, and were blamed for practices not entirely of their making.

Coordinated Advertising

The sixth principle recommends that coordinated advertising should be developed by the utility and other dealers with the view of making available to the dealer all reasonable cooperation in advertising, displays, and sales promotion. It is hoped that all logical outlets for appliances will join in cooperative efforts to stimulate mutual business.

The utilities are quite willing to extend their advantages in the promotion of business to all of those who will benefit by it. But the utilities, alone, cannot plan and administer cooperative campaigns. It is a job in which all interested merchants must participate.

Principle number seven states that down payments, carrying charges, and the length of instalment terms shall permit of fair competition. Small appliances, if sold on instalment terms, shall carry an adequate finance charge. Manufacturers' national policies, when inconsistent with sound practice, are to be discouraged.

In agreeing to establish policies which will permit of "fair competition" the utilities have in mind "fair competition" with the small independent dealer. With many retailers advertising "no down payment" and "50 cents down," it is difficult to define just what instalment policy can be considered fair to all. Here is an important situation in which the utility can exert its stabilizing influence.

Threat of Discontinuing Service

The eighth point brings up a subject with which we found it difficult to deal. It touches on the threat—or implied threat—that the utility will discontinue gas or electric service if a customer does not pay for merchandise purchased from it.

Now, such a procedure is against the law and the utilities are well aware of that fact. If an employee used such a threat to aid in collecting for merchan-

dise I am confident that, upon due proof, his employer would discharge him. Obviously, we would not say, in these principles, that we would not do something that is against the law. However, we do say that on any combination bill, rendered by a utility, the amount due for merchandise shall be clearly segregated from the amount due for utility service.

Another difficult problem is that of compensation of salesmen. Many of you believe that because of their basis of pay, the utilities' salesmen are more aggressive than the salesmen of other dealers. There are two points in this connection. One is that regardless of whether it is straight salary, salary and commission, or straight commission, the salesman must produce business in proportion to the amount paid him. The second point is that of all employers of direct salesmen, the utilities in most cases use a basis of compensation which is less apt to cause the salesmen to overstep the bounds of ethical selling.

The ninth principle therefore says that compensation of utility appliance salesmen shall be such as to attract and hold qualified and responsible representatives. The activities of all salesmen should be controlled so as to avoid misrepresentation and other unfair selling tactics.

You are all employers of salesmen of one kind or another. You have all been through the mill when it comes to the complaints that arise from over-enthusiasm on the part of salesmen. You can realize that, being in the public eye as we are, the control of our employees in their public relations is a considerable problem. Be assured that misrepresentation is not the policy of, nor will it be tolerated by, the management of utility companies.

Welcome Complaints

While we welcome complaints and will investigate them carefully, it must be understood that frequently it is difficult for us to get at the real facts involved in many such complaints. This is illustrated by the story of the woman who complained of terrible profanity on the part of a lineman who did some work near her home. The lineman was immediately called on the carpet and here is his side of the story: "Bill was up on a pole and I was under him on the ground. All of a sudden some hot lead dropped down on my neck. So I looks up and says, 'Better be careful, Bill, you might hurt somebody.' The conduct of utility salesmen is a problem of management and supervision not of compensation.

The next statement is that in extending its services to new customers, the utility shall not make the purchase of appliances from any given source a factor in the situation.

Segregate Merchandising Accounts

Here again we are dealing with an alleged practice that is not only unethical, but illegal and not tolerated by the management of utility companies. And here, again, we must exercise control over our employees, so that the policies of utility management will be known and administered in the field.

The last principle, number eleven, says that the utility shall segregate all merchandising accounts from operating accounts. The presentation to the public of appliances and uses not having reasonable consumer acceptance is a promotional activity, and as such shall be charged to the appropriate operating account in accordance with the State Uniform Classification of Accounts.

This method of accounting is in accordance with recognized practice and is followed by all utilities in this state. It is often believed that our merchandising accounts are confused with operating accounts. Such a procedure is impossible.

To Govern Merchandising

As I said before, the foregoing principles will govern each Pennsylvania utility in the conduct of its merchandising. In some instances they have been slightly changed to make them apply to local situations. I am sure that your local utility will be glad to inform you as to its application of these principles. They indicate a desire to conduct merchandising businesses on a basis which permits of fair competition.

The announcement of these principles is in some instances your first knowledge that the utilities have never done some of the things of which they have been accused. In other respects it is your first knowledge that certain practices are being discontinued. In all cases it is your assurance that the utilities will adhere to sound merchandising principles.

I realize that there are some among you who would welcome legislation to prohibit the sale of appliances by utilities. The most recent information indicates that no one has benefited by such laws in Kansas and Oklahoma. Meanwhile, 200 people have been legislated out of employment. In Pennsylvania it would be several thousand. Seventy stores have been legislated out of tenants and thrown on the real estate market. In Pennsylvania it would be several hundred. Things can easily

Under Sunny Skies



A group of General Electric men golf in Florida sunshine. Left to right: H. G. Bogart, Jr., Toledo; Dan Willis, Akron, Ohio; W. E. Landmesser, Cleveland; Turner Barger, Columbus, Ohio, and A. F. Head, Indianapolis.

be legislated out, but it is difficult to legislate things in.

Chain Stores Get Business

Most important of all, there is abundant evidence on all sides that when the utility is out of merchandising, the dealer, such as yourself, is not necessarily in. Rather it is apparent that he, too, suffers.

During this past December a large utility, in a state where utility merchandising has been prohibited by law, sponsored a cooperative appliance campaign in which all types of dealers participated. The utility furnished promotional advertising and cooperation but, of course, sold nothing. At the end of the campaign it was found that the chain stores had done over 52 per cent of the business. The department stores gathered in about 30 per cent and the balance went to all other outlets.

The fact that all the hardware stores collectively sold less than 4 per cent should be of interest to you. When you consider the large number of hardware stores, in comparison with the fewer chain and department stores, it is apparent that the business done by each individual hardware dealer was hardly worth considering. The methods of the stores that obtained 82 per cent of the business presented competition which made the former merchandising by the utilities shrink into insignificance.

I am convinced that with honest performance by the Pennsylvania utilities along the lines of the foregoing merchandising policies, with better contacts between dealers and utilities and with the intelligent help of the manufacturers and jobbers, all retail outlets will prosper most.

Settle Differences Together

The place to settle differences such as we have here is around a table. Too often, in recent years, has the government been asked to step in and prohibit, regulate, or conduct business enterprises. Every time that is done a further burden is loaded on the public. Taxes per capita now amount to \$110 per year—about \$40 per month for the average family. In the period during which private development of the electrical industry has brought about a saving of one-half in rates, the cost of government has been multiplied by three.

No one can criticize an individual for fighting for what he believes is right. In this particular controversy I have the highest admiration for those of you who have brought your grievances directly and frankly to the utilities. I believe you have found them to be friendly and willing to adjust situations to your advantage. I believe that any bitterness attending this subject has arisen from the activities of professional agitators.

Get Facts First

Let me suggest that you make sure that the stories you read and hear regarding the activities of utilities are based on facts. Let me further suggest that you analyze the motives of those who spread gossip and half-truths. Controversial situations sometimes attract men who are quite willing to prostitute the reputation and influence of well-known associations, such as yours, for personal gain or political favor.

I would say to any dealer in this room that there is a big opportunity in the sale of electrical appliances. It is my understanding that the average gross profit on the total sales of large and small hardware stores in large and small centers of population is 26 per cent. With discounts on most electrical items running higher than this average, it is obvious that an increase in the sale of such merchandise will increase the margin available to offset the cost of doing business and produce a net profit.

Turn-over Necessary

However, if it were all profit but there were no sales, you would hardly be justified in stocking such lines. There must be turn-over. Turn-over occurs in direct ratio to the amount of advertising.

In the electric demonstration at your show, there are many interesting exhibits, but I was most impressed with the one indicating that the sale of one percolator at \$3.50 is equivalent in profit to the sale of 11 five-pound packages of nails.

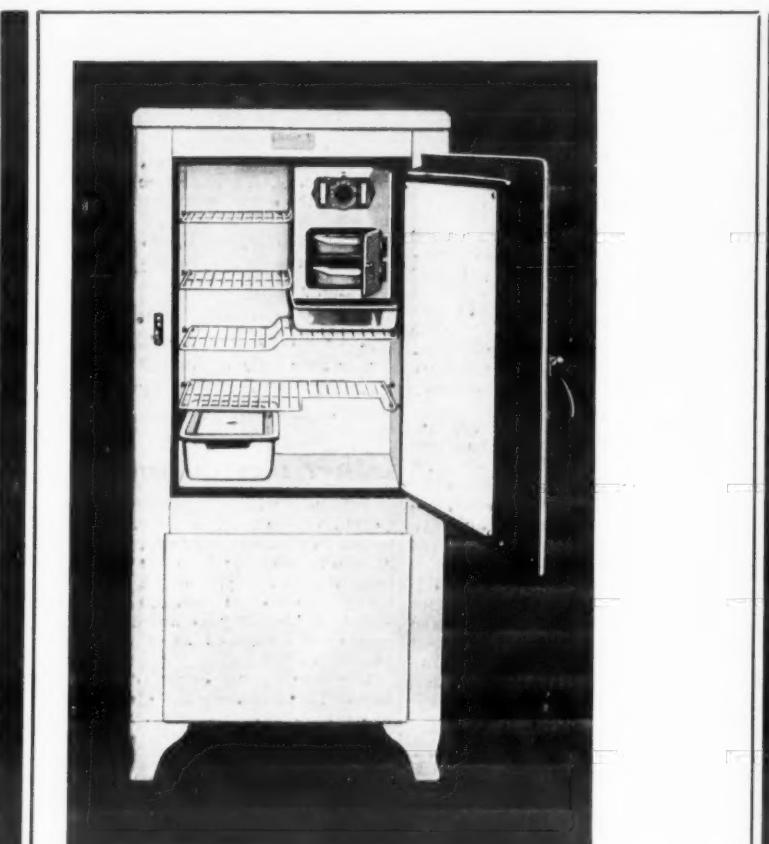
If, in the past, you have felt or feared competition from the utilities, let me say this. The utilities in Pennsylvania know that their business is most prosperous when there exists the maximum number of successful retail outlets for gas and electric appliances.

But I caution you that unless you are alert and aggressive, people will never walk in and ask for appliances in sufficient volume to justify carrying them in stock. Appliances must be well displayed. They must be demonstrated and "talked up." In your communities you have enviable reputations and a following of loyal customers. Your location is convenient. You are in a position to render prompt service. Your customers look to you for all sorts of advice and help on household and mechanical problems. They rely on your judgment.

Profit by Own Efforts

So it is perfectly logical that they should buy appliances from you, yet statistics for most localities show that hardware dealers get a very small share of the business. Estimates of the extent of this share range from 4 per cent to 15 per cent of the total. The lion's share goes to department stores, instalment houses, and to direct-selling organizations working out of so-called specialty stores. If you expect your customers to buy appliances from you, you must equip yourself to render the same excellent service in connection with gas and electric appliances that you have always rendered in your general hardware business.

The utilities are quite ready to lead the way in advertising, promoting, and building a market. The individual dealer will profit in direct proportion to his own efforts.



No. L-452

THE NEW 1932

Universal Coolers

MEET ALL DEMANDS

EVERY refrigeration prospect will find in the new Universal Domestic Series a model that fits his requirements and purse. The line is as complete as it is dependable and economical, including a 3- and a 4-cu. ft. model with lacquer exteriors and a 5-, 6- and an 8-cu. ft. model that may be had with either lacquer or porcelain exteriors. Every desirable feature is incorporated in these models and they are thoroughly modern in every detail. In short, they have everything that the buyer of today could demand—including unusually attractive retail prices.

Complete details upon request

Universal Cooler Corp.

Detroit, Mich.

Brantford, Ont.

STORIES OF INTERESTING PLACES IN THE INDUSTRY

AN EDITOR ON WHEELS

By George F. Taubeneck

NEW ORLEANS—"AMERICA'S MOST INTERESTING CITY"

New Orleans, Louisiana

Always I should like to keep my last memory of New Orleans lying around handy where I can look at it often, turn it upside down, smell it, taste it, and rattle it in my ear.

For New Orleans is preeminently a city of sensations—not the tabloid milder wuxtry kind—but the sensations of which Charles Lamb wrote and Montaigne, the sensations of touch and taste and smell, of hearing, too, and sights in great number.

Other cities can give you sights (New York has its skyscrapers). Other cities can give you smells (Chicago has its stockyards). But no other American city can give you taste sensations as can New Orleans. And the sights and sounds and smells of New Orleans are not big, bad, bold sensations, but are refined, delicate lingering sensations which belong not to the New World of wheels, antiseptics, and speed, but to the Old.

New Orleans is a city which does not (like Boston and Chattanooga) preserve the bones of its illustrious dead. It is an historical place; yet one does not have the feeling there of walking through tombs and beside catafalques. Rather it keeps alive its past; it fans gently the embers of romance which were fired when Creole passions burned fiercely.

Instead of solemnly placing a tablet and a wreath, New Orleans gaily lights another candle from the ebbing flame of the last one and keeps its long life span unbroken.

Last Memory

That last memory which clings so poignantly has chiefly to do with a dinner at Antoine's.

Before succumbing to the tender paltry ministrations of oysters Rockefeller and pompano en papillote, however, I browsed myself into a receptive mood by poking through the squeezed-up, continental streets of the Vieux Carre, that portion of the eighteenth century New Orleans which still lives and which has not changed its costume since the day of Andrew Jackson and the pirates Lafitte, the Marquis de Lafayette, and the Cassette girls.

The amiable and coffee-soaked attendants of the multitude of dusty curio shops which fight for leg room and breathing space in the Vieux Carre were neighboring for a moment preparatory to closing for the day.

Erudite folk, who would rather indulge in the whims of culture than live expansively, their arty small talk and easy camaraderie seemed to enhance the soft light of eventide and the mellow old walls of the "quarter" as robin's-egg blue satin sets off golden waterwaves and starry blue eyes.

Students drifted home to studio apartments rescued from old counting houses and sculleries. Bereted and besmocked artists inhaled pipe smoke and sunset glow on rusty grilled balconies. A plump old Frenchwoman chattered, or rather, yowled, at a grocery boy in her two-by-four restaurant. All was well.

Dual Personality

After dinner (which we will skip for the moment) came a moonlight stroll past the Cabildo—where I paused to imagine Lafayette making a pompous exit, through the Old Square where an equestrian Andrew Jackson peers upward at the half-drawn shades in Baroness Pontalba's apartment house (America's first), and over to the levee, where the U. S. S. "Constitution" (Old Ironsides) and the U. S. S. Arkansas, sise and great-grandsire, were tied up together in the Mississippi river. And there a Marine told me of Constantinople and Singapore, Stockholm and Liverpool.

The odd juxtaposition of the frigate "Constitution," which helped win the war of 1812 and is still mastering the waves, and the battleship Arkansas, which saw service in the World War but which is probably not modern enough to go to Japan tomorrow, seemed to us symbolical of New Orleans.

This city has a magically preserved and pulsating remnant of America's First Days, moored at the side of a reasonably modern new city—which latter is not the last word in ultra modernity, but is serviceable.

And these two cities which are one have docked bravely on a horseshoe bend of the sometimes raging Mississippi, and laughing grimly at Ol' Man River's frequent attempts to drown it. New Orleans, the dual personality, has made itself the second largest port in the United States.

And now for that dinner, the climax of a delightful winter itinerary which had included Coral Gables and Miami Beach, Fla., and Havana, Cuba.

Although chefs at Antoine's are noted for their fecundity in devising new dishes and new guises for old ones, I chose for this last dinner the masterpieces on which the fame of the restaurant has rested for centuries: baked-in-the-shell oysters, pompano-in-paper-sack, balloon French-fried potatoes (with hollow insides, after the manner of "Puffed Rice"), a slice of French layer cake, and a "small black" (demi-tasse, stout).

My perpetually hungry father, who has a homespun maxim, "all there is in life is what you eat," would have undoubtedly designated that dinner as one of the two or three highest peaks of happiness in his career.

It was a meal to be tasted, sipped, lingered over—just as if it were wine as old as the restaurant itself.

Antoine's Food

And it was a good place to prolong these gustatory delights, for there were no distractions, such as music, or striking decorations or obstreperous parties. The room has been changed but little since Antoine Alciatore laid it out in 1840. When electric lights came along, Antoine's son, Jules, had a skilled craftsman in brass add naked electric bulbs to his gas chandeliers. So unostentatious is this *salon à manger* that usually all one can remember of it are those queer dual light fixtures.

Roy Alciatore is now following precisely in the footsteps of Antoine's two previous operators, his father and grandfather.

The waiters, accomplished linguists, make as little noise as a petting party staged near an explosive and light-sleeping father.

All these aids to gustatory concentration indicate the management's supreme confidence in the quality of its food.

New Orleans cooking is just about the ultimate in American culinary art.

Many private homes maintain cooks which make the lives of their employers daily hymns of thanksgiving. And dozens of restaurants are in the first flight.

Other Restaurants

Arnaud's which is good without being expensive, has an additional attraction in its *bon vivant* manager, who may sit at your table and delight you by recounting an idyll about a 150-pound cornyellow-haired Scandinavian swede-heart of his, or mayhap a war tale, or *peut-être* an anecdote of some famous personage.

The more plebeian "Smile" oyster bar keeps 10 men busy opening monstrous oysters, which are served you on the half-shell at 25 cents the half dozen. A brass rail would help.

In a cool and flower-scented courtyard of a romantic old Vieux Carre structure which was the Bank of Louisiana (its underground vault protected the city's gold when the pirates Lafitte were on the loose) is the Patio Royal restaurant, popular with the city's on-the-make intellectuals. At luncheon there you will see more interesting people than you will meet in a week of everyday travel.

Vieux Carre means "old square." It is usually known to tourists as the "French quarter." Yet the population is more American "Bohemian" than French.

Its gay and cultural atmosphere attracts artists, students, savants, writers, and professional Bohemians from many places.

Many of them find employment in the antique and curio shops, which show their jumbled and juggled wares through every other window in the section. Others study or work. Still others just live there.

At any hour of the night the inhabitants may pop in on one another, smoke, sip coffee, crack a bottle, and talk.

The Vieux Carre

Those who like spick-and-span, prophylactic cleanliness, press-the-button conveniences, and overstuffed comfort in their living quarters may well wonder why these art-folk—yea, and some of the city's most prominent business and professional men—choose to live in such antiquated and musty quarters.

The buildings rise sheerly from the narrow sidewalks which fringe the hop-step-and-jump-wide streets. Ground

floors are occupied by antique shops or are boarded and shuttered. Second and third floors have apartments and are distinguished by fancy iron grill work and balconies.

One or two centuries old are these structures. The sandy mortar walls are perpetually damp. Furniture is antique and hard. Plumbing, installed at great cost, is of the Early American Railway Station period. Lighting may be sketchy.

But history oozes from every wall, and the "atmosphere" is as thick as the haze in a Pullman smoking compartment. Most important: the conviviality of kindred minds.

A Bit of History

Hugging the land north of Canal St. (New Orleans' main business street) the Vieux Carre is bounded in addition by the Mississippi river, Rampart St., and Esplanade Ave.

It originally was a settlement of a tribe of Houma Indians. In 1718 a city was built on this marshland by the French explorer, Sieur de Bienville (against the commonsensical protests of his engineer, de la Tour).

New Orleans became the French American capital in 1722. German blood entered, and the Spaniards came. Louisiana was transferred to Spain in 1762, back to France in 1800, and sold to the United States in 1803.

And there you have it—an American city with a foundation population of French and Spanish, with a trace of German.

These are the Creoles, whose belles are justly famous, even today, for their beauty.

Today about 15 per cent of New Orleans' population is French-speaking. Some 30 per cent are negroes.

Its inhabitants are pleasure loving, hospitable, remarkably friendly. Social life is the epitome of their existence. They enjoy warm winters, indulge mildly in outdoor sports—especially aquatic—and hunt and fish in a paradise of wild fauna.

City of Commerce

Even so, New Orleans has found time to become a great city of commerce. Its industrial development is slight, but it is the chief trading center for the Mississippi Valley and even of the South (Atlanta possibly excepted).

It is the largest coffee, banana, sugar, cotton, rice, nitrate, cigar, cigarette, sulphur, and salt market in the United States.

Situated 110 miles from the Gulf of Mexico, New Orleans is generally counted the world's greatest inland port.

Floods, fires, and plagues have attempted without success to stem the commercial progress of the fighting business leaders of the city.

The New City

South of Canal St. lies a modern residential section which is much like that of any other sizeable southern city (population of New Orleans is 400,000).

Tree-laden boulevards, inviting parks, landscaped estates of the wealthy, moss-freighted oaks, spacious verandas and galleries, pines and palms, luxuriant flower gardens, occasional monuments and public buildings, lagoons and lakes embellished with swans.

Every 10 blocks or so one finds an exceptionally wide boulevard, which streets are designed to keep fires from spreading.

Also unique are the 17 pumping stations which pump the rainfall into canals and out to Lake Pontchartrain (much of New Orleans is below the normal river water level).

City Park has a stately stretch of royal palms, numbered trees for picnics, a golf course, the Delgado art museum, wild ducks (in winter) on protected ponds, and a totally surrounded estate of a wealthy oil man—who built his home there before the park came into being.

New Orleans is a thoroughly exploited tourists' haven. Its myriad curio shops attest to that fact. So do its night clubs.

These sin-dives in the Vieux Carre are meant especially for the reveling visitor who wants some "atmosphere" and wants it raw. He gets it.

Patrons are packed together at tables circling a tiny floor, listen to bum music, watch cheap entertainment, and drink searing liquor.

What these clubs need most of all is air-conditioning.

Sight-Seeing

Of the sight-seeing points there are no end. Browsing beats sight-seeing in New Orleans, anyway.

But if you like museums, there's the historic Cabildo (where Louisiana changed hands three times). And such spots as Pirate Alley, Old Absinthe House, St. Louis Cathedral, Two Sisters Patio, Sieur George House, Capuchin monastery, French market, Beauregard home, Haunted House, former U. S. Mint, O'Reilly's Headquarters, and St. Anthony's Garden (dueling ground).

Clairborne House, is overrun with artists and art, as is Arts and Crafts, which has a model patio. Tulane University is in New Orleans. Also interesting is the Little Theatre.

The "cribs" in the Vieux Carre make an amusing motor drive. Girls whistle and beckon from every doorway, from the iron lacework of the balconies, from the shuttered windows.

Some of these houses advertise themselves with honest-to-goodness red light bulbs. Only Olive St. in St. Louis is so brazen.

America's best food, a genuine and sincere Bohemian community, a well preserved and living chunk of the eighteenth century, financial leadership of the South, second port of the United States and inland waterways terminal, home of the Mardi Gras, and home of hospitality, chivalry, and romance—possessing all these, New Orleans has a reasonably valid claim to its official slogan: "America's Most Interesting City."

Mardi Gras

Up to now we have made no mention whatsoever of the Mardi Gras, although this annual carnival is inextricably associated with the name of New Orleans in the minds of thousands. Perhaps it deserves special consideration.

Have you ever lived in a small town? If so, you have a small-scale idea of the nature of a Mardi Gras, for it's much like Main Street Hallowe'en, Fourth of July, and Saturday afternoon all rolled into one.

There are big parades of fancy floats and brass bands, grand balls at night, masquerade revelers, dancing in the streets, decorated houses and stores, noise, color, crowds, impromptu merrymaking.

Small-town populations, however, would not enter so heartily and so limberly into the spirit of levity as do New Orleans people.

The entire city—children, city dignitaries, debutantes, dock hands, young and old, rich and poor—suspends its cares and woes and frolics in the street.

A Picture

For blocks the streets are thronged. Nothing but the brightly-hued avalanche of people can be seen. Searing and clashing colors, jazzy tunes from the bands, lusty clowning, capricious masques, and the whooping big floats.

Masques run in packs. Gangs of boys and girls all clad alike join hands and skip down the street.

Creole, plantation, Robin Hood, prisoner, gypsy, Pierrot, colonial, oriental, sailor, South Sea Island, aviator, and various nationalities—these are prevalent costume themes.

Most popular in 1932 were combinations of colored overalls, bright silk blouses, and berets. Girls dressed in boys' clothes, too; and many were the simpering and ribald female impersonators.

Unmasked parents proudly lead tiny tots on whose costumes great labor have been expended. Capricious youths try to kiss masqued girls.

Preceding the parade is flying wedge of motorcycle cops, followed by trucks, official cars, policemen on foot, and a phalanx of mounted "bulls."

The floats themselves follow some definite theme. In 1932 the "Rex" morning parade had as its theme, "Monsters of Fable," and included representations of a hydra, unicorn, orge, centaur, phoenix, griffin, roc, dolphin, and dragon. That night all the floats in the "Comus" parade were floral.

Themes of past Mardi Gras "Rex" parades have included: 1890—Rulers of Ancient Times; 1892—Symbolism of Colors; 1897—On the Water; 1902—Quotations from Literature; 1906—In Utopia; 1908—Classics of Childhood; 1910—Freaks of Fable; 1912—Phases of Nature; 1915—Fragments of Classic Song and Story; 1917—Gifts of the Gods to Louisiana; 1919—Rex Lays Aside the Sceptre for the Sword; 1922—Romances of the River and Valley; 1924—Notable Women of History; and 1926—Music of the Bells.

Riders of the floats inject excitement into the crowds by flinging "up for scramble" strings of beads by the hundreds. Some of the strong-armed riders manage to fling beads far up into the spectator-crammed balconies.

More than 250 dealers will be served in the territory in which the new distributor will operate. In 1931 these dealers were served through distributors in Des Moines, Chicago, and Milwaukee.

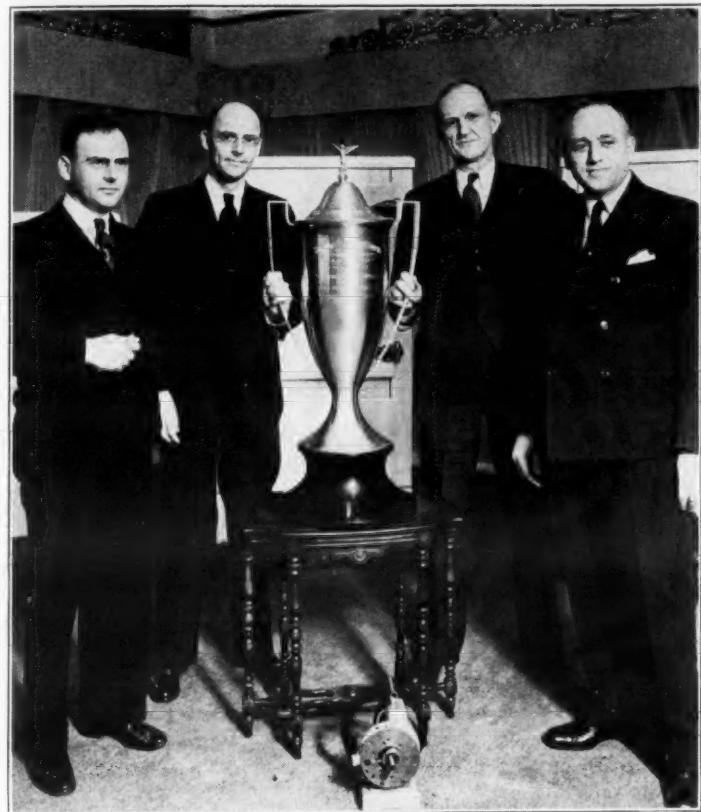
DUBUQUE FIRM APPOINTED MAJESTIC DISTRIBUTOR

DUBUQUE, Iowa—The Midwest-Timermann Co. of Dubuque and Davenport has been appointed distributor for Majestic refrigerators and radios for eastern Iowa, western Illinois and southwestern Wisconsin, according to G. J. Timermann. The Davenport branch will be immediately reopened.

More than 250 dealers will be served in the territory in which the new distributor will operate. In 1931 these dealers were served through distributors in Des Moines, Chicago, and Milwaukee.

NEW ORLEANS—"AMERICA'S MOST INTERESTING CITY"

Norge, Kelvinator Conduct Series of Field Conventions



As a reward for winning the Norge Christmas opportunity contest, Automatic Sales Co., Houston, Tex., won the President's Cup. Left to right: W. M. Wood and C. Lee Wood, Automatic Sales Corp.; R. E. Densmore, western sales manager; W. C. Rowles, district manager.

Executives Talk Shop



Norge executives attended a distributor-dealer meeting of the General Equipment Corp., Boston distributor. Left to right: John H. Knapp, Norge vice president in charge of sales; J. G. Waddell, president, General Equipment Corp., and Howard E. Blood, president of Norge Corp.



Another set of Norge champions, this time bowling champions of the Detroit City League. Left to right (standing): Frank Ashley, who has a season's average of 207; William Holyburton; and Tom Haley, 202 averages. Sitting: Herman Bengell, captain, and Anthony Wilkins.



Nineteen countries in Europe and Africa were represented in the fourth annual meeting of Frigidaire distributors held during January at Hotel George V in Paris. George D. Reidel, European manager, is shown in the front row, fifth from left.



Norge dealers operating under the Republic Radio Corp. in western Michigan viewed the 1932 line of household refrigerators and planned the year's sales campaign in a meeting with officials of the manufacturing company at Grand Rapids.



PAULINE PEACOCK
One of the three new members of the Kelvinator factory home economics staff.



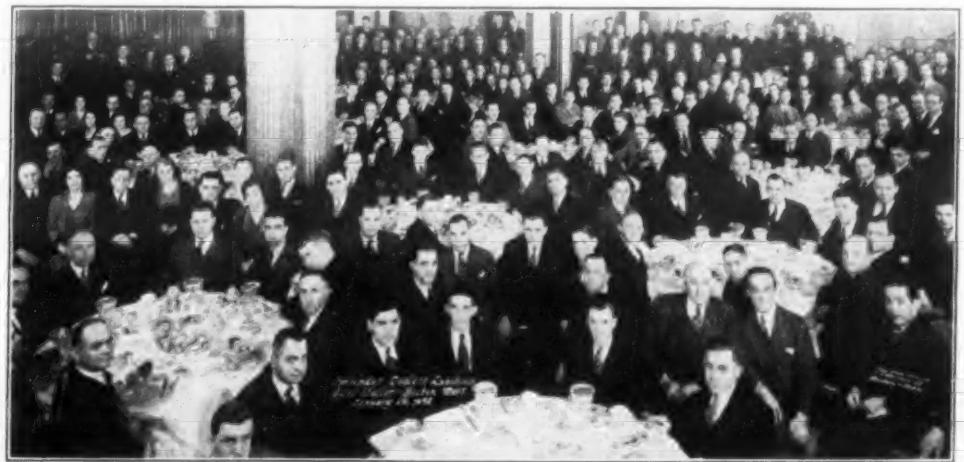
Part of Kelvinator's barnstorming crew of factory executives who are conducting field conventions throughout the country. Left to right: Dr. W. A. Phares, president, Wichita Kelvinator Co.; A. M. Taylor, Kelvinator advertising manager; Karl Donovan, vice president, Wichita firm; A. B. O'Neill; Vance Woodcox, sales promotion manager; A. G. McIlroy, secretary-treasurer, Wichita firm; Jack Taylor, district manager.



HELEN SMITH
First G. E. home economist in Australia has outsold every salesman in Melbourne.



George Mason, president of Kelvinator Corp., was one of the speakers at Boston district meeting.



Eastern Pennsylvania dealers heard 1932 sales plans at a Kelvinator meeting in Philadelphia.

Through a Woman's Eyes

By Gertrude Stanton

Frigidaire's Miss Miller

A neat white uniform, some recipes, a talk before a woman's club may be some home economists' idea of a job. What can really be done with such a job has been demonstrated by several women in the industry. One of these is Miss Verna Miller, of Frigidaire.

She was graduated from Ohio University at Athens, not so long ago; she has unusual and beautiful combination of brown eyes and golden-yellow hair, and gets so enthusiastic just talking about her job that the home economics editor of one of the popular women's magazines asked her, "Don't you do anything but work?"

She has the customary neat white uniform, some recipes—plenty of them, tested over and over—and talks, on occasion, to parent-teacher's meetings, and other groups of women, but that's not all.

Four years ago, when she came to Frigidaire, it was just a "recipe" job. Until that time, Frigidaire had had no tested recipes, and had found that reliance on those which had been compiled by heat-cooks instead of cold-cooks, were not always successful.

So Miss Miller's first job was to make up a recipe book, testing each before she put it in. And in doing this, she made her first departure from recipes proper, and stepped over into the engineering phase.

Some recipes tested beautifully, but others, with ingredients which made them harder to freeze, just would not turn out right. Miss Miller was horribly discouraged, with that discouragement that comes of being on a job only a short time, and feeling that already the end of it had been reached.

The Cold Control

"Why," she asked in a report, "can't you have some means of regulating the degree of cold and the freezing speed in the freezing compartments?"

That was the beginning of the Frigidaire "Cold Control." Miss Miller is quick to tell you that she did not invent the Cold Control,

and disclaims all credit for it, but the fact remains that although such a thing had been thought of in the engineering department, still it was not until her complaint that serious work was begun to perfect the device.

Within a few months the Frigidaire in her kitchen laboratory were equipped with Cold Control, and only a short time elapsed before it was a standard feature of the Frigidaire line.

From that time on, Miss Miller felt that things were just beginning, she says. She still feels that way, after four years. Her enthusiasm shows it.

Recipe Books

There is more to making up recipes than is apparent at first, too. It doesn't consist merely of making up a batch of something, tasting it, and writing it down. Perhaps you make it up using coffee cream, and then, using the same recipe, you make a dessert using whipping cream as the base. Both may taste well, but which is more satisfactory?

Miss Miller never relies on her taste alone, but sends servings of the dessert to various Frigidaire offices, accompanying them with little cards to invite comment. Faithfully the little cards come back, telling her the reasons why "I liked this one, but I didn't care for the last one."

Perhaps the cards on a certain recipe will be largely unfavorable. Making up a dessert with the same recipe, she will put it in the refrigerator and freeze it at a different speed. Comments may be enthusiastic, and the commentators usually do not recognize the recipe at all.

"There is," she points out, "just as much technique to cold cookery as there is to that with heat. Freezing speed means as much as cooking speed. Recipes for oven-baked foods always say 'bake in a quick oven or bake in a slow oven.'"

It is one thing for Miss Miller to make up delicious desserts herself, and another to write them in such form that even a new Frigidaire user may understand them.

She does exceptionally well at this, however, and in leafing through her recipe books one comments on the length and completeness of her explanations.

Other Duties

Miss Miller ties in with the engineering department on helping with various tests. The week we were there, her kitchen and laboratory were crowded with Frigidaire models, both the "White" line and the Moraine line, being tested side by side for comparative efficiency. These tests were to have been finished in three more days, and then some other project would be waiting for her.

The room temperature is recorded constantly, as the value of these tests was to show performance under average kitchen temperatures, as against other tests in which the refrigerator was kept in a constant temperature.

Temperatures were kept at four different spots in the cabinet and were recorded automatically. Still another record showed the number of times the current went on and off.

A tie-in of the sales promotion department with Miss Miller's work comes in such studies as that in which she determines how much Frigidaire can save a housewife by various means.

Miss Miller will do marketing for a certain sized family over a period of weeks, taking advantage of the bargains, buying in large quantities, and determining how long various foods will keep in the refrigerator. She will keep a record of her savings in dollars and cents.

Still another example of her duty is that of determining just where in the refrigerator various foods should be kept. This is material for a "how to use" booklet for Frigidaire owners.

In order to get the sales slant, last year she went out into the field and learned the attitude of the individual housewife to electric refrigeration first hand by canvassing, and came back with added enthusiasm, if that were possible.

"And if I go stale?" she answered. "Why then I go out to one of the plants and start walking through, and before I've gone very far, I find something I want to ask questions about, and can hardly wait to get back to my kitchen with my new idea."

Kitchen Colors

"That dead, cold white makes me all nerves. It reminds me of a hospital," said the woman behind us at the cooking school, watching the all-white "kitchen" which had been set up on the stage. And her companions agreed with her.

Thinking that the question of color in the kitchen might have something to do with the question of refrigerators in colors—an experiment which has been tried or is being tried by almost everyone—we decided to have a survey and learn just what colors the modern housewife does use in her kitchen.

It wasn't much of a survey, only 25 homes, but such as it was, we present it.

Out of the 25 homes, 14 had either cream, or green, or both colors. Six were cream and green; one was yellow and green; three were green alone; one was cream alone; one was green and ivory and one green and white; one was cream and white.

In all the 25, there was but one all-white kitchen. Other colors used were blue (four kitchens had this color, combined with either white or gray); gray alone; ivory, and one which was "buff" and biscuit.

One man reported that while building a new home they had had an electric refrigerator lacquered to match their kitchen, and were very much pleased with their color scheme.

Perhaps the kitchen is going through the same evolution as the bathroom. Nothing was so modish a few years ago as the all-white bathroom—dead white, unrelieved by any color except, perhaps, the border of the guest towel Aunt Minnie gave you for your wedding present.

Now, however, one may bathe in an orchid, or sea-green, or ash-rose or even black bathtub. The walls may be panelled in modernistic fashion. Not that the average American home has that sort of bathroom, but at any rate color is creeping into the curtains, and the floors, and the tiling.

The kitchen, following the great varnished-pine-woodwork era, went suddenly surgical white. Kitchen cabinets, built-in woodwork, walls were all white.

Conniving, as it does, the height of cleanliness and sanitation, white will probably continue to be the most popular kitchen color, at least for the basis of decoration.

But the housewife who does her own work, and spends many hours in her kitchen, in spite of all her electrical helpers, is modifying the laboratory-like atmosphere of the all-white kitchen.

Kitchens are painted "off-white," in cream, or ivory shades. Women buy red teakettles, or green-handled potato masher. They get a can of lacquer and paint the inside of their cupboards a bright color, to reflect the light.

Whether or not all this has, or will have, any bearing on refrigerator exteriors in pastel shades, we don't pretend to know—but it might.

Don't Give Us Away

We are in great demand these days. The information has, of course, come to our friends' ears that we are connected with the electric refrigeration industry in some manner. It's all very vague to most of them, but we are suddenly very popular on that account.

No sooner do we start trying to make game in clubs than "My Whatzis refrigerator won't freeze ice cubes fast enough . . . Well, as a matter of fact, mine won't freeze desserts at all . . . How do you fix the . . ." and so on.

It would never do to let them know that we are not an authority on servicing any and all makes and models of electric refrigerators, so we listen, and shake our head knowingly and have been known to go to the kitchen and thump the refrigerator and put our ear close to it.

"It doesn't?" we ask surprisedly. "Well, it should." And with that mysterious statement they are usually baffled.

Taking No Chances

L. W. Springer, head of the Muncie Electric Sales Co., tried the guessing contest stunt recently, placing a large jar full of quarters, dimes, nickels and pennies in his window and offering a prize for the closest guess as to the total.

Great success was being noted. The prospect list was climbing, in number of names, by leaps and bounds, for contestants were required to come into the showroom for regulation blanks on which to record their figures.

About that time the contest attracted a man who wished to take no chances on getting a prize. Instead, he broke the plate glass show window and took the jar of money.

BUYER'S GUIDE

Manufacturers Specializing in Service to the Refrigeration Industry

SPECIAL ADVERTISING RATE (this column only) \$12.00 per space. Minimum Contract for this column—13 insertions in consecutive issues.

All advertisements set in uniform style of type with standard border. Halftone engravings of 100-line screen, either outline or square finish. No reverse cuts or heavy black effects. No charge for composition.

FLINTLOCK CONDENSERS

FOR EXTRA CAPACITY WITH GREATER EFFICIENCY

Used as standard equipment by over 65% of the leading electric refrigerator manufacturers.

FLINTLOCK CORPORATION
4461 WEST JEFFERSON
DETROIT, MICHIGAN

BARE COMPRESSORS

New 1/6 H. P. Twin 1 1/4" x 1 1/4"

For Sulphur Dioxide or

Methyl Chloride

Other Sizes 1/6 H. P. to 50 H. P.

"PARKER" Refrigeration Since 1899

H. C. PARKER, LTD.

2600 Santa Fe Ave. (Factory), Los Angeles, California
510 Larkin Street, San Francisco, California
437 Montgomery Street, Jersey City, New Jersey



Fools for Work

Save one man on deliveries! Make heavy lifting easy—quick! Eliminate damage to cabinets! Prevent damage to floors, walls, woodwork.

X-70 REFRIGERATOR TRUCKS

Light weight; all-steel frame; 4" rubber tired wheels; one truck fitted with two top casters to aid in tilting and rolling into delivery truck. Only pads touch cabinet. Fit all cabinets, with or without legs. Built to last a lifetime.

Complete \$38. Rubber tired, ball bearing swivel casters on one end, \$5 extra.

YOUR ADVERTISEMENT

in this Buyer's Guide Column will be seen by distributors, dealers and refrigerator manufacturers throughout the entire world.

SPECIAL LOW RATES

make it easy to keep industry buyers constantly informed of your products and service.

Electric Refrigeration News
550 Maccabees Bldg.
Detroit, Mich.

How To Get Prospects

As Told By An Office Manager

POMONA, Calif.—Some methods of discovering the identity of a visitor who enters an electric refrigerator dealer's shop and is reluctant to give his name, are outlined by Mrs. E. M. Cox, office manager of the Eugene M. Cox Co., refrigerator dealer here.

"Some of the visitors are exceptionally shrewd," Mrs. Cox declares. "They are on their guard, and it is an unusually competent sales person who impresses their names out of them. However, here are some subterfuges that frequently work."

"One of them is that of introducing the visitor to another salesman or someone else in the store. It is impossible to introduce two persons properly if the introducer does not know the names of both. Hence, we must ask the visitor her name."

"Usually the person to be introduced is a salesman, who, according to the explanation offered, is better posted on some of the features of the refrigerator and can therefore explain them better than the introducer."

"The salesman, taking his cue, will repeat the name and wonder if the prospect is the one of that name who lives at such-and-such an address. If not, the visitor may correct him by giving her address. Or, he may ask if her husband's initials are, we'll say, 'C. J.' If not, she may give her own."

"Thus, through the medium of introductions we may get the name or the address; in either case we may look up the rest of the information in the city directory."

Another scheme used by Mrs. Cox

of the name of a friend who has an electric refrigerator, then to endeavor to get the name of the visitor through the friend.

"If none of these work, it is possible to get the automobile license number as the visitor drives away, and consult the motor records. Sometimes we have even resorted to following the visitor in another car to discover where she lives, whereupon the street guide will reveal her name."

UTILITY COMMERCIAL MEN DISCUSS ELECTRICITY USES

PORLAND, Ore.—Commercial men of electric utility companies in the Northwest and representatives of manufacturers and distributors of electrical appliances met at the Multnomah hotel for the seventh annual conference of the commercial section of the Northwest Electric Light & Power Association. The association covers Oregon, Washington, Idaho, Utah and Montana.

The session was given over to the discussion of development of home uses of electricity.

Plans for the national refrigeration campaign for this year were discussed by G. M. Gadsby, president, Utah Power & Light Co., Salt Lake City, director for the Northwest campaign.

Air conditioning was discussed by Dean H. S. Rogers, school of engineering, Oregon State College.

Uses of electricity in farm operations were also discussed.

Refrigerator Display

THE Imitation Food PRODUCTS CO.

107 Lawrence St. Brooklyn, N.Y.

Ask for catalog of Jan. 1932

30 items in 1924-170 now

Prices Greatly Reduced

A Refrigerator Assortment of:

A: 18 pieces for \$9.60 B: 24 pieces for \$12.60

C: 30 pieces for \$17.00



WOOD CONVERSION COMPANY

Industrial Sales Offices:

CHICAGO, 360 N. MICHIGAN AVE.

New York, 3107 Chanin Bldg.

Detroit, 515 Stephenson Bldg.

San Francisco, 149 California St.

BUYER'S GUIDE

Manufacturers Specializing in Service
to the Refrigeration Industry

SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.
Minimum Contract for this column—13 insertions in consecutive issues.
All advertisements set in uniform style of type with standard border.
Halftone engravings of 100-line screen, either outline or square finish.
No reverse cuts or heavy black effects. No charge for composition.

CABINETS

Lacquered Steel and Porcelain Exteriors

Sizes stocked from 3½ to 8 cu. ft. net capacity, also
built to specifications for unit installation.

Cabinets for Multiple-jobs

ILLINOIS REFRIGERATOR CO., Morrison, Ill.

SITKA SPRUCE

Eliminate Inventories Discard Dry Kilns

Let us carry the inventory. Let us do the drying. We carry the largest stock of sawn Sitka Spruce lumber in the world. Special drying equipment enables us to guarantee lumber that contains less than 9 per cent moisture content. Deliveries always on time, no delays in your production.

C. D. JOHNSON LUMBER CO., Portland, Oregon

ALL REFRIGERATORS LOOK ALIKE TO

AMIGO

REFRIGERATOR CLEANER

A million owners waiting for it. Polishes as it cleans—
Lacquer—Porcelain—Hardware—Shelves—Freezing Trays

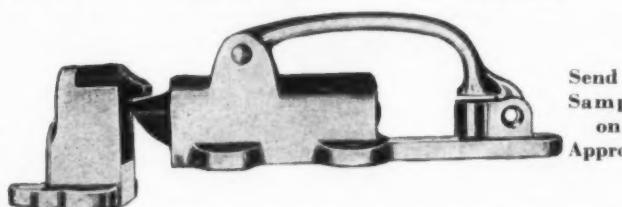
Distributors and Dealers write for sample

Amigo Products Co., 1511 S. Vermont Ave., Los Angeles, Cal.

KASON K-54A REFRIGERATOR LATCH

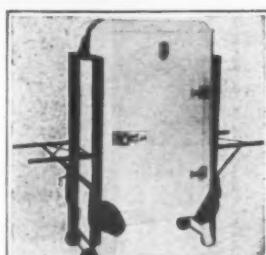
Pat. Des.
No. 81737

1932
MODEL



Send for
Samples
on
Approval

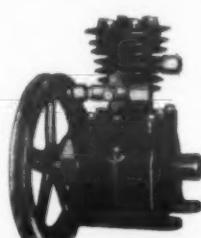
Kason Hardware Corp., 61-67 Navy St., Brooklyn, N. Y.



EASY-WAY CARRIERS

With an Easy-Way Carrier, any household refrigerator, small or large, can be delivered by two men quicker, better, cheaper than by any other method. Delivery damage to cabinets or to customer's premises practically eliminated. MONEY-BACK GUARANTEE. If you find Easy-Way not as represented, it can be returned C.O.D. within 10 days from invoice date. Costs only \$26.50

R. & R. Appliance Co., Inc. 315 N. Main St., Findlay, O.



GET THIS STORY

Get the story of Brunner High Sides and Compressors. Learn Brunner's contribution to quiet, rugged, foolproof refrigerator units. Write today! Brunner Manufacturing Co., Utica, N. Y.

HIGH SIDES and COMPRESSORS by BRUNNER

IMITATION FOODS

SELL MORE REFRIGERATORS
BY USING IMITATION FOODS FOR DISPLAY

Send for our special assortment (13 pieces), \$10 net, or for our catalogue showing various assortments

Reproductions Company, 210 South St., Boston, Mass.

REQUESTS FOR INFORMATION

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, mentioning query number.

Answers to most inquiries for statistical information and sources of supply will be furnished by the 1932 Refrigeration Directory and Market Data Book to be issued in March. Price \$2.00.

Compressors and Evaporators
Query No. 656—"Can you inform us where we can purchase rotary type compressors and evaporators for remote installations?"

Answer—"For rotary type compressor, Houda Engineering Co., 537 East Delevan Ave., Buffalo; for evaporators, Fedders Mfg. Co., 57 Tonawanda St., Buffalo; Mullins Mfg. Co., 605 South Ellsworth Ave., Salem, Ohio; and the Detroit Lubricator Co., 5842 Trumbull Ave., Detroit.

Refrigeration Industry
Query No. 657—"We are writing for such information as you may be in a position to furnish regarding the electric refrigeration industry. We would be interested in knowing something of its growth and development, its present status, and its future possibilities, so far as may be estimated or predicted, and any definite statistics which you may have available."

Answer—"The 1932 REFRIGERATION DIRECTORY and DATA Book, to be issued soon will give this information. One section of this book will present all of the worthwhile statistics available. Other sections will contain classified lists of all manufacturers within the industry and suppliers of materials and parts to these manufacturers.

Bottle Vending Machines

Query No. 658—"We have been referred to you for a list of automatic refrigerated bottle vending machines."

Answer—"Copeland Products, Inc., 332 Cass Ave., Mt. Clemens, Mich.; Zerozone Corp., 939 E. 95th St., Chicago; E. M. Jones Products Co., 629 Spring St., N. W., Atlanta, Ga.; S & S Vending Machine Co., 603 W. Julian St., San Jose, Calif.

Refrigerator and Parts Agency

Query No. 659—"We have been looking for some time for a desirable electric refrigerator account to represent for foreign trade. It occurs to us that on account of tariff and other difficulties many countries will gradually manufacture their own electric refrigerators and thus open up some good business for electric refrigerator parts such as compressors, electrical controls, copper tubing, condensers, motors, fittings, valves, etc. Perhaps you might be able to put us in touch with reputable manufacturers of these lines who are not yet represented for export."

Standard Refrigerator Tests

Query No. 660—"We would like to learn what requirements, if any, are necessary to have household refrigeration units pass standard tests to which they are apt to be submitted."

Quick-Frozen Food Distribution

Query No. 661—"The undersigned is seeking information in regard to the method used for distribution by the Birdseye Quick-Freezing process as it is our desire to obtain territorial rights in Oregon and western states if possible."

Answer—"It is our understanding that the General Foods Corp., to which patents on the Birdseye system have been assigned, is not licensing others to use these patents. Communications on this subject should be addressed to Clarence Birdseye, General Seafoods Corp., Gloucester, Mass.

Invest in an Electric Refrigerator

Query No. 662—"Will you please advise where we can get a placard similar to those used by other refrigeration companies with the wording 'Invest in an Electric Refrigerator'? The phrase is written on a placard bronzed to look like a piece of coin."

Answer—"George N. Brown, manager, Electric Refrigeration Bureau, 420 Lexington Ave., New York City.

Brass Stampings

Query No. 663—"We enclose blue print illustrating a new type evaporator that we have patented. The blue print calls for brass stamping and we would like to know where we can have the stampings made. Will you give us the names of some firm capable of executing work of this kind?"

Answer—"Detroit Metal Specialty Co., 1651 Beard St., Detroit; Youngstown Pressed Steel Co., Warren, Ohio; Consolidated Equipment Corp., Greenville, Mich.

Coin Meter Clocks

Query No. 664—"We would appreciate it if you will forward us the city and street address of the Metro Clock Co. We believe they are located in Cleveland. The concern manufactures coin operated clocks for use with electric refrigerators."

Answer—"We believe the meter referred to is the Metro-Meter, manufac-

tured by the J. P. Seeburg Corp., 1510 Dayton St., Chicago.

Tools for Servicemen

Query No. 665—"Please send us at your earliest convenience a list of manufacturers making special tools for servicing household and commercial machines. I am particularly interested in valve wrenches, flaring tools, gas masks, etc."

Answer—"Bonney Forge & Tool Works, Allentown, Pa.; Apco Mossberg Corp., Attleboro, Mass.; Mine Safety Appliances Co. (gas masks), Braddock & Thomas Sts., Pittsburgh, Pa.; Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago; Pulmosan Safety Equipment Corp. (gas masks), 176A Johnson St., Brooklyn, N. Y.

Cabinet Lighting Equipment

Query No. 666—"Please send us the names of firms which can supply us with lighting equipment suitable for putting in Frigidaire cabinets."

Answer—"Garden City Plating & Mfg. Co., Ogden Blvd. and Talman Ave., Chicago.

Eutectic Brine Cartridges

Query No. 667—"A customer has asked us to learn about and secure for him what he terms 'cartridges' to be used instead of ice and salt tanks for cooling his refrigerated truck. We are curious as to what liquid is used in these cartridges. If we knew the formula we could perhaps make such cartridges ourselves. Probably more practical would be to buy from a manufacturer specializing in such equipment. Please put us in touch with such manufacturers."

Answer—"Cartridges filled with so-called eutectic brine, formula for which is carefully guarded. Consolidated Equipment Corp., Greenville, Mich., supplies them.

Buckeye Refrigerators

Query No. 668—"Where can I obtain complete specifications on the Buckeye refrigerator? Why has this machine not been announced in the News? Would appreciate if you are able to inform me where and by whom this is manufactured."

Answer—"Buckeye refrigerator announced and described in ELECTRIC REFRIGERATION NEWS for Dec. 16. Manufactured by Domestic Industries, Inc., Mansfield, Ohio.

Rubber Doors

Query No. 669—"We are desirous of making connections with a manufacturer of rubber doors for refrigerator cases."

Answer—"Aetna Rubber Co., Ashtabula, Ohio; Luverne Rubber Co., Trenton, N. J.

Metal Bellows

Query No. 670—"Kindly send us by return mail a complete list of manufacturers capable of manufacturing metal bellows."

Answer—"Clifford Mfg. Co., 564 East First St., South Boston, Mass.; Fulton Sylphon Co., Knoxville, Tenn.; Bishop & Babcock Sales Co., 4901 Hamilton Ave., Cleveland; Bridgeport Brass Co., 774 East Main St., Bridgeport, Conn.

Refrigerator Manufacturers

Query No. 671—"Will you kindly fur-

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE is paid in advance
—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

POSITIONS AVAILABLE

WANTED: Household refrigeration salesmen to sell Norge in La Crosse, Wisconsin. Must be able to furnish good references as to past results. Men who we hire will be paid drawing account and substantial commissions. Excellent opportunity for good men. Box 422.

POSITIONS WANTED

FACTORY REPRESENTATIVE for EUROPE, REFRIGERATION and RADIO EXPERT. Eight years of executive experience in appointing, organizing, supervising Distributors and Dealers throughout Europe, Balkans, North Africa. Particularly fit for adapting specialty selling and American modern merchandising methods to European conditions. Has strong personality, diplomacy, tact and initiative. High education, speaks several languages, well introduced in European business and banking circles. Best references available. Salary not main object. Connection with reputable, strong concern, prime importance. Box 416.

SERVICE MANAGER desires connection with active distributor of domestic and commercial electric refrigerator. Capable of reorganizing metropolitan installation, service and shop departments, including the supervision of service activities of provincial dealer organization. A six-year active position with a prominent distributor of a nationally known electric refrigerator, coupled with first class references, are main qualifications. Box 417.

SERVICE and installation man thoroughly experienced on Methyl Chloride machines desires position as field service representative or service manager for dealer or distributor. Seven years' refrigeration experience. Capable of instructing servicemen and contacting dealers. Now employed as factory field service representative. Salary expected \$225.00. Box 418.

PRODUCTION PLANNING: Material control, purchasing or cost. Over seven years' experience in one of the largest electric refrigeration organizations as well as several years experience in other lines of manufacturing. Open for position March 1. Opportunity considered over salary. Best references. Age 37. 7766 Senator Ave., Detroit, Mich. Phone Vinewood 1-9257.

Trained Men Available

When in need of practical, trained shop mechanics, sales, installation or service men, patronize this FREE Placement Bureau. We have competent, trained graduates available in every locality, to meet your requirements. With or without experience. No charge to the men or to you. Write, phone or wire.

Utilities Engineering Institute

Placement Division
Dept. 922
404 No. Wells St., Chicago

nish us with names and addresses of manufacturers who make electric refrigerators priced to retail at \$100 or less?"

Answer—"Domestic Industries, Inc., 282 North Diamond St., Mansfield, Ohio.

SUBSCRIPTION ORDER

Business News Publishing Co.,
550 Maccabees Bldg.,
Detroit, Mich.

1932

Sirs:

Please enter order for subscriptions as follows:

- ELECTRIC REFRIGERATION NEWS only 1 year 2 years.
- REFRIGERATED FOOD NEWS only 1 year 2 years.
- 1932 REFRIGERATION DIRECTORY (To be issued March 1, \$2.00 per copy).
- ELECTRIC REFRIGERATION NEWS and REFRIGERATED FOOD NEWS. Combination rate for both papers 1 year 2 years.

SUBSCRIPTION RATES (Effective Jan. 1, 1932)

	Electric Refrigeration News	Refrigerated Food News	BOTH PAPERS	
1 Yr.	2 Yrs.	1 Yr.	2 Yrs.	
In United States and Possessions and all countries in Pan-American Postal Union	\$3.00	\$5.00	\$1.00	\$1.50
In Canada (where new tariff of 5 cents per copy applies). Payment in U. S. money.	\$6.00		\$2.00	\$7.00
All other countries	\$4.00	\$7.00	\$1.50	\$2.50
			\$5.00	\$9.00

Name.....

Attention of
or care of.....

Street address.....

City and state.....

</

Distributors and Dealers

Refrigerator Profits . . . plus Washer and Ironer Profits!

That's the way to make 1932 a real profit year!



Automatic offers for 1932 5 pace-setting washers

3 great ironers

New price range . . . new discounts . . . new allowances . . . new service and selling co-operation . . . a truly unique distributor and dealer proposition!

Think of it! There were more washers sold in 1931 than in 1930. And these washers had the biggest dollar value, excepting only refrigerators, of any appliance in the electrical field.

Here is opportunity! And here is a line that enables you to take full advantage of it. A complete line of both washers and ironers. A quality line, too, from top to bottom. Irresistible in eye appeal. Uncompromising in structural excellence. Matchless in dependable performance. Supreme in dollar value. A worthy line, indeed, to bear the honored name of one of the oldest companies organized for the purpose of making electric laundry equipment.

Distributors and Dealers
Write for all the interesting details!
Some select territories still unassigned

Prepare now to maintain volume and profit, even when refrigerator selling is slack. Get the details of the new Automatic line of washers and ironers. The New Service Insurance Plan. The Trade-in Proposition. The Cooperative Local Advertising Plan. And other interesting features. You owe it to your business to investigate carefully. Address

**Automatic Washer Company, 2300 W. Third St.
Newton, Iowa**

*Retail prices shown here apply East of the Rockies

AUTOMATIC

WASHERS...IRONERS

MADE IN NEWTON, IOWA

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

ISSUED EVERY WEEK
VOL. 6, NO. 25, SERIAL NO. 153Copyright, 1932, by
Business News Pub. Co.

DETROIT, MICHIGAN, FEBRUARY 24, 1932

Entered as second class matter
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY
THREE DOLLARS PER YEARAUTHORITIES ON
AIR CONDITIONING
TO HOLD SCHOOLCase School, Cleveland,
Will Open 3-Day
Course March 17

CLEVELAND—Authorities in the field of air conditioning will assume the role of "teachers" for a 3-day course in air conditioning to be held on the campus of Case School of Applied Science, here, March 17, 18, and 19.

Professor G. L. Tuve of Case School general chairman of the conference, announced that he has received acceptances to speak from such prominent luminaries as Walter L. Fleisher of New York City; R. E. Keyes, chief engineer of the Cooling and Air Conditioning Corp., New York City; Dr. E. Vernon Hill, editor of the *Aerologist*, Chicago.

W. H. Carrier, president of the Carrier Corp., Newark; Wm. H. Driscoll, vice president, Thompson-Starrett Co., New York City; H. B. Meller, chief of the Bureau of Smoke Regulation of Pittsburgh; and F. B. Rowley, president of the American Society of Heating and Ventilating Engineers.

Other headliners on the program include Max F. Rather, and W. C. Schmid, Cleveland; E. D. Milener, American Gas Association, New York City; J. J. Grebe of the Dow Chemical Co.; Professor G. F. Larson, University of Wisconsin; F. C. Houghton, Pittsburgh; W. D. Jordon, president of Air Control Systems, Chicago; Dr. F. Paul Anderson, dean of

(Concluded on Page 2, Column 5)

7 MODELS COMPRIZE
1932 WILLIAMS LINE

BLOOMINGTON, Ill.—Seven new models comprise the Williams Ice-O-Matic line for 1932, according to an announcement by C. U. Williams, president of the Williams Oil-O-Matic Heating Corp.

"Basically, the design of the 1932 cabinet line will stand," Mr. Williams stated. Piano hinges will be standard on all models; the hardware is of a modern design in a bright finish. All tops and door edges are beveled, and corners have been rounded.

The interior of the cabinets is of acid-proof porcelain, and the exterior in two finishes, cellulac (a cellulose or lacquer product made to Williams specifications) or porcelain.

The evaporator is one-piece construction, with removable shelves, and is cadmium plated. Its exterior finish is of bright metal.

Two of the models, the L-50-T and the L-60-T have the unit mounted on top; the others have them in the base of the refrigerator cabinet.

WEIR, WHEELOCK BRINGS
OUT MIDGET REFRIGERATOR

NEW YORK CITY—A midget refrigerator, the Weir Refriger-Ette, only a little over a yard high, is being marketed by Weir, Wheelock Co., Inc., of 56 Warren St.

Three models are available in the midget line, all 36 1/2 in. high, 20 in. in width, and 18 in. in depth. The least expensive of the models, priced at \$125, has 1.5 cu. ft. of food space, and a 21-cube capacity.

The \$150 model has 63-ice cube capacity and one cubic foot of food space. The most expensive, priced at \$175, has

(Concluded on Page 2, Column 2)

GEORGE MONJIAN VISITS
SERVEL FACTORY

EVANSVILLE, Ind.—George Monjian, president of the Chicago Refrigeration Service Co., was a visitor at the Servel factory, here, recently, en route to Florida for a vacation trip.

Mr. Monjian is a Servel commercial dealer, and was greeted at the factory by C. L. Olin, Servel service manager, and W. J. Aulsebrook, commercial sales engineer.

Springfield Firm
To Bring Out
New Line

SPRINGFIELD, Mass.—The Metal Saw & Machine Co., Inc., here, is bringing out a new line of electric refrigerators for apartment and household use, and will be in quantity production May 1 with five cabinet models ranging from 4 to 10 cu. ft. capacity.

The compressor unit has four moving parts, and no exposed operating part except the fan, according to the announcement. The compressor, which is of the rotary type, is connected directly to the motor by a close-coupling arrangement, and the compactness of the unit lends itself to water and beverage cooling and other small installations of limited space, executives of the firm claim.

It is powered with a 1-6 hp. motor, and uses methyl chloride as refrigerant. Its eccentric shaft is made of nitrided steel.

Besides making its own line for the trade, the company purposes to produce compressor units for use by other manufacturers. For its own regular line the company is installing the unit in the bottom of the cabinet, but it may be

(Concluded on Page 11, Column 3)

ARMSTRONG DEVISES
NEW CORK INSULATION

LANCASTER, Pa.—The Armstrong Cork & Insulation Co., here, has just introduced a new cork insulation board, which is treated at the factory for protection against air infiltration. The new insulation is known as Armstrong's Super Service Corkboard.

This board is lighter than regular Armstrong's Corkboard and, consequently, has a lower coefficient of heat conductivity, namely, .263 as compared with .304 for Armstrong's, a difference in insulating efficiency of about 13 1/2 percent in favor of the Super Service board, according to engineers of the company. To put it another way, 6 in. of Super Service Corkboard has an insulating efficiency equal to that of 7 in. of standard corkboard, they explain.

The real feature of Super Service Corkboard is that it is imperviously sealed on both faces with a special asphalt mastic coating ironed on the corkboard at the factory. This coating is firmly keyed into the surface and, being entirely free from breaks and "pin holes," provides protection against infiltration of air and moisture, Armstrong engineers claim.

The asphalt in the coating is especially formulated to withstand low temperatures without cracking or peeling, and the finish has a stiffening effect so that, in spite of the lower density of the cork, Super Service Corkboard is equal in strength and rigidity to regular corkboard, they believe.

The new board is intended for asphalt erection. It can also be nailed to wood construction, but cannot be put up with Portland cement mortar. For a finish, asphalt plastic or asphalt mastic are

(Concluded on Page 11, Column 4)

SERVICE FACTOR
IN EFFICIENCY OF
CARTRIDGE UNITSNew York ASRE Hears
Waltham System
Explained

NEW YORK CITY—Getting economical and satisfactory use out of the cartridge type of refrigeration depends almost entirely on the way in which units are serviced, D. Walker Hannable of the Waltham Systems, Inc., told the New York section of the American Society of Refrigerating Engineers in a talk on eutectic refrigeration at their monthly meeting last Wednesday.

Mr. Hannable opened his talk by saying that a eutectic mixture is simply one that will retain the same proportion of its constituents at the freezing point that it will when liquid. That is, if there is too much tin in a mixture of tin and lead, a deposit of solid tin will be found on top of the alloy after the mass has solidified; if there is too little tin, a deposit of lead will be found; if the mixture is eutectic, neither of these conditions will occur.

In refrigeration, the eutectic system is the same as the cartridge method of applying cold. Eutectic refrigeration is so-called because the cartridges contain a eutectic brine solution, which is frozen within the container.

Cartridge refrigeration is a commercial development of the last 10 years, Mr. Hannable said. George Richmond first made eutectic ice in 1887, and other men repeated his experiment later, but these pioneers were unsuccessful commercially, according to the speaker, because they did not realize that the distributing end of the process is more important than the chemical formula used in making up the brine mixture.

The first point in setting up a eutectic ice system, according to Mr. Hannable, is to build a satisfactory container.

It is necessary to develop brine-ice and apply it in a form that will maintain a temperature near zero, that will readily absorb heat from the perishable it is to cool, and that will have a mini-

(Concluded on Page 8, Column 3)

Refrigerated Truck
Reports

Details of the Feb. 15 meeting of the Detroit Section of the American Society of Refrigerating Engineers, in which the subject of refrigerated trucks was discussed, are printed on the inside pages of this section.

Practically every major problem which has arisen in connection with the production and operation of refrigerated trucks was discussed at this meeting, which was attended by representatives of refrigeration, insulation, body-building, automotive, and auxiliary gas engine firms.

Service Manager

R. G. NELSON
Recently appointed national service manager of Norge Corp.NEW THERMO VALVE
ANNOUNCED BY ALCO

ST. LOUIS—A Junior Thermo Valve has recently been developed by the Alco Valve Co. to handle refrigerating loads up to two tons. This valve makes possible the application to the smaller jobs of the principles used in the Alco Thermo Valve, Alco engineers state.

Unlike the larger valve, however, the thermal element of the new Junior Thermo Valve is charged at the factory. The charge is sealed in by special welding and soldering processes. The remote bulb which clamps to the outside of the suction line, is available to fit 1/2, 3/4, or 1 in. pipe. Valves are furnished with flexible steel tubing up to 20 ft. in length, according to the announcement.

Only one adjustment is necessary to set the valve for the desired operating conditions, according to the designer. Any number of valves may be used in multiple to control temperatures independently in the individual boxes operating on one compressor. It is usually not necessary to install magnetic shut-off valves ahead of the Junior Thermo Valves to control the temperatures, the announcement claims.

Various control schemes have been worked out by the Alco Valve Co. for applying these valves to butcher shops, grocery stores, small packing plants, florist shops, hotels, and restaurants.

HIALEAH RACE TRACK BUYS
8 WATER COOLERS

HIALEAH, Fla.—Eight water coolers of the bubbler type have been installed in various parts of the new race track, here, by F. J. McGinnis, Inc., Miami and Palm Beach distributor for Kelvinator Corp.

One cooler is in the office, one in the betting room, another in the hospital, a fourth in the jockeys' quarters, and the others in the grand stand.

CONDITIONED AIR
CORP. ORGANIZED
BY DETROIT MENDehumidifying, Cooling
System Used By
Company

DETROIT—The Conditioned Air Corp. has just been organized with offices in the Ford Bldg., here, to build and install residential air conditioning equipment, and a central system, trademarked the Alco, has been designed which humidifies, cools, washes, and heats air for circulation into a home.

Officers of the new company are G. L. Schuyler, president; Joseph Sherer, Jr., vice president and treasurer, and Frederick S. Ford, secretary.

Sales representatives have been named in New York and Cleveland, according to Mr. Schuyler, and plans are under way to extend distribution to other cities.

The Alco system includes dehumidifying and cooling the air with a direct operating 20x22-in. bush finned aluminum coil served by a Universal Cooler condensing unit, air heating in the winter by connection of heating coils to a conventional hot water or steam plant, humidification of the air and washing with three water sprays, cleaning by passage of the air through a spun copper filter, and distribution through ducts to the rooms of the house.

With the exception of the condensing unit, and humidistat and thermostat controls, all equipment for treating the air is contained in an angle iron frame.

(Concluded on Page 2, Column 1)

WESTINGHOUSE HOLDS
SERVICE CONFERENCE

SAN FRANCISCO—J. A. Vassar, assistant national refrigeration service manager for Westinghouse, conducted the first Western Regional Refrigeration Service Managers' conference here recently. K. K. Gordon, Pacific Coast service manager, assisted in managing the conference.

A complete line of units and cabinets was displayed and discussed throughout the five-day session. These were supplemented by charts, parts, board diagrams and talks.

The following service managers from Westinghouse distributor organizations were present: C. W. Dean, Colvin-Templeton, Inc., San Francisco; Harold Gardner, Westinghouse Electric Supply Co., San Francisco; J. F. McCarthy, Colvin-Templeton, Inc.; Donald Colvin, vice president, Colvin-Templeton, Inc.

J. T. Templeton, president of Colvin-Templeton, Inc.; C. F. Brown, Fobes

(Concluded on Page 11, Column 2)

F. BOYLE NAMED DIRECTOR
OF FOND DU LAC CONCERN

FOND DU LAC, Wis.—Francis Boyle has been elected a director of the Sanitary Refrigerator Co., filling the place left vacant on the board by the death of H. R. Potter. Carlton Mauthne, formerly fifth director on the board, has been elected treasurer. William Mauthne, the president; Herman A. Uihlein, Milwaukee, vice president, and B. K. Miller, secretary, have been reelected to the board and to the offices they hold.

Due in part to the fact that the electric refrigerator department authorized by the stockholders at the last annual meeting has developed into a profitable and growing department of the business, the company was able to keep a normal force working every day during the past year, according to Mr. Mauthne.

CARRIER GETS UNIVERSITY
OF CALIFORNIA CONTRACT

SAN FRANCISCO—The Carrier Engineering Corp. has been awarded the subcontract for the installation of refrigeration and air conditioning equipment in the three-story and basement physics building addition to be erected on the campus of the University of California at Los Angeles.

The new addition will be 64 by 130 ft.

Frigidaire Engineers Study Air Conditioner



Frigidaire's new air conditioner was studied by this group of sales engineers at a recent factory meeting. L. E. Smith, who was in charge, is at the left in the front row.

CONDITIONED AIR CO. FORMED IN DETROIT

(Concluded from Page 1, Column 5) work, 48x32x24 in., concealed in a sheet metal enclosure, and designed for installation in the basement.

The plan is to cool only one or two rooms of a house at a time, Mr. Schuyler explains. By means of a damper in each room served by a duct, the conditioned air can be enjoyed in that room until the owners go into another. One large duct returns recirculated air to the conditioning equipment for reconditioning.

Ducts Lined with Felt

To reduce the transmission of noise from the air conditioning plant, ducts are lined with one inch of hair felt within 10 or 12 ft. of the conditioner, Mr. Schuyler explains, and for the same reason the condensing unit is placed several feet away from the conditioner to keep its vibration from being transmitted into the house as noise.

Homes up to 5,000 cu. ft. of volume are provided with a 1-ton Universal Cooler condensing unit, while up to 9,000 cu. ft., a 2-ton machine is used, Mr. Schuyler states.

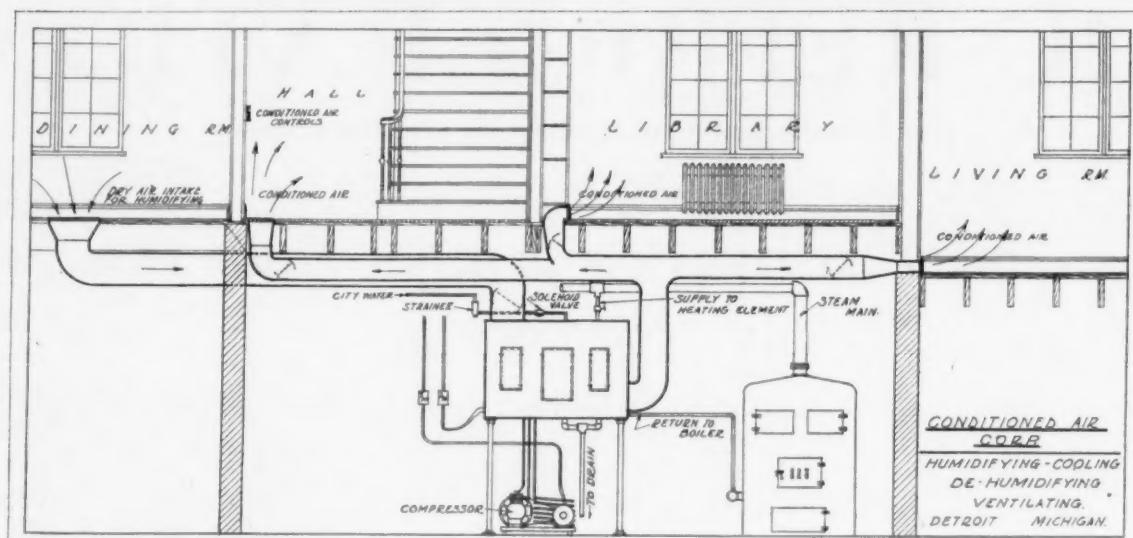
Detroit Lubricator Controls

Controls for the system were designed by engineers of the Detroit Lubricator Co., and include a humidistat for operating the solenoid valve which passes water through the sprays for humidifying and washing; a reverse thermostat which controls the compressor and fan motors; a transformer for reducing the house current to 30 volts for operation of the humidistat and thermostat; a relay; and a Mercoid 100 to 200° F. thermostat which regulates the fan operation in the winter.

One of the features of the control system, Mr. Schuyler points out, is that the fan will not force cold air up into the house in the winter when the heating system is off.

From 500 to 1,000 cu. ft. of air per minute are circulated through a home by the 1/6-hp. Clarge centrifugal fan in the air conditioner, Mr. Schuyler avers. Operating costs claimed range around three cents per hour when the 1-ton compressor is installed.

Plan for Home Air Conditioning



The system shown above is used by the newly organized Conditioned Air Corp., Detroit, for cooling or heating and dehumidifying or humidifying the air in a home.

WEIR, WHEELOCK BRINGS OUT MIDGET REFRIGERATOR

(Concluded from Page 1, Column 1) 126-ice cube capacity and one-half cubic foot food capacity.

All three models use a 1-6 hp. compressor assembled especially by the corporation. Insulation is of 1 1/2-in. Insulite; Fedders expansion valves, and Ranco controls are used. The interior is of baked white enamel, and the outside can be secured in enamel of any color.

Suggested uses for the midget refrigerator are to meet the requirements of the small home, apartment, cottage, bungalow, kitchenette, yacht, camp, servants' quarters, or as an auxiliary for the nursery, butler's pantry, den, doctor's office, bar, hospital, offices or rest rooms. Its size enables it to fit under the sink in the kitchen.

Eutectic Refrigeration System Explained by New York ASRE Speaker

(Concluded from Page 1, Column 4) minimum loss of its refrigerating power during the period it is in use or transportation. All of these qualities depend on the container.

The container used by Mr. Hannable's company is triangular in shape. It is lead-coated on the inside to offset corrosion from the brine, and on the outside to resist air corrosion. It is made strong because of the numerous handles it must endure in being transported to and from the freezing plant every 48 hours.

The next point is to determine the means of freezing the mixture within the container. Waltham uses electric refrigeration of the full flooded ammonia type. The containers are exposed to cold in the freezing chambers or shelves that provide direct contact on one side of each cartridge, and allow the cold air to pass continuously and freely over the other two sides.

48 Hours for Freezing

It takes about 48 hours to freeze a cartridge the first time it is put in use, Mr. Hannable said; after that the cartridge is never, in normal operation, more than half melted, so that the subsequent freezings take from 12 to 24 hours in the electrical refrigerator.

The brine mixture within the cartridges, a secret formula, must be frozen steel hard, Mr. Hannable said. They are subjected to a temperature ranging from -14° to -18° F.

The third point to consider in making brine ice practical is the transportation unit. The trucks made by Waltham for the ice cream industry have to serve three purposes, and there are three kinds of compartments on each truck body. In one type of compartment the ice cream is kept while in transport.

For this purpose the brine cartridges are hung so as to be exposed to the air on all three sides. This allows them a give off their maximum amount of refrigerating power, and maintain a temperature in the compartment from +4° to +10° F.

The other purpose of the truck is to transport eutectic cartridges to and from the points where they are to be used by the retailers to chill perishables in their dispensing units. Chambers in the truck bodies for these purposes are built so that the cartridges are very close together. In this way the minimum amount of refrigerating power is expended in transit.

Design of Dispensing Units

The returning cartridges, which have only 40 to 60 per cent of their refrigerating power left, are kept separate from the outgoing charged cartridges so as not to rob the latter of their power.

Retail dispensing units, Mr. Hannable told the engineers, need as much careful designing as the trucks. They are insulated with the equivalent of 4 in. of corkboard. While the dispensing units must be economical, the chief problem is their servicing, the speaker said. The cartridges have to be easily removable from the dispensers.

They are changed every 48 hours, but can go another 24 hours in an emergency. This is made possible by the remaining 60 per cent of refrigeration power that is in the cartridges after two days, he said, which keeps the temperature up to the same level achieved by a new cartridge, on the principle that ice will give off the same temperature as long as a large portion of the ice is unmettled.

It costs from 22 to 80 cents to charge a ton of units, Mr. Hannable said. The lowest rate is achieved at points where power is very cheap, as on the Niagara circuit, and the rate ascends exactly as power costs rise. It costs from 44 cents to \$1.80 to freeze a cartridge the first time it goes into use.

About 10 per cent of the refrigeration

EXPERTS WILL SPEAK ON AIR CONDITIONING

(Concluded from Page 1, Column 1) engineering, University of Kentucky; H. C. Murphy, vice president of the American Air Filter Co., Louisville; and S. R. Lewis, Chicago.

The program is so arranged that the conference literally will be a 3-day school for the purpose of studying the fundamental principles of the subject of air conditioning.

The course will afford an opportunity for contractors and builders, heating and ventilating experts, refrigerating engineers and salesmen, theatre and public building operators, doctors, nurses and teachers of hygiene and also home owners to acquire a comprehensive knowledge of this new topic, according to sponsors of the school.

Some of these sessions will pertain to conditioning of air for human comfort, while the remainder of the conference will be used for discussing industrial processes requiring controlled air conditions.

The "school" on air conditioning is the third and last industrial conference of the college year, sponsored jointly by Case School of Applied Science and the Cleveland Engineering Society. A nominal charge of \$2 will be made for the entire course and \$7.50 for individual sessions in order to defray expenses.

Additional information may be had by writing Prof. Tuve at Case School of Applied Science, Cleveland.

his company figured that half the present cost of chilling refrigerating cars could be saved if the railroads would use the eutectic system. He said that only one-tenth of one per cent of all the refrigerator cars now in service are chilled by modern methods, such as electric refrigeration. He pointed out that in installing eutectic ice service cycles in new fields, it will be necessary to install them on a wide scale at once, as they will neither give good service nor save money if used in small scale operations.

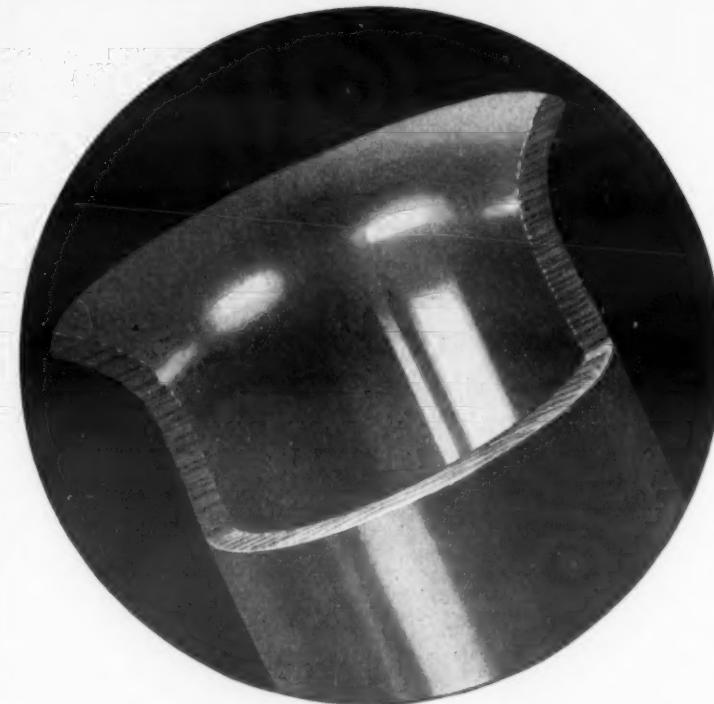
One use in which cartridges have given good refrigerating service for two years is in milk stores in a tropical city, the speaker said. In the dispensing units in use on this system insulating partitions perforated with holes keep the cartridges from taking too much heat from the milk and maintain the temperature at about 40° F.

The marketing of quick-frozen foods will provide a good use for eutectic cartridges, Mr. Hannable thinks. He is now, he announced, working on a system whereby cartridges can be used in the stores for frozen foods, and some other form of refrigeration in the trucks.

Air conditioning appliances, old-fashioned ice boxes, and other cooling units could be adapted to take brine cartridges, Mr. Hannable said, if proper delivery routes could be made up.

Fred Ophuls, who had been figuring the cost of eutectic ice cooling as against that of other refrigerating agents, asked Mr. Hannable why, if eutectic ice was so cheap, it had not entirely supplanted dry ice. Mr. Hannable declined to answer on the grounds that he was a specialist on only one side of the problem.

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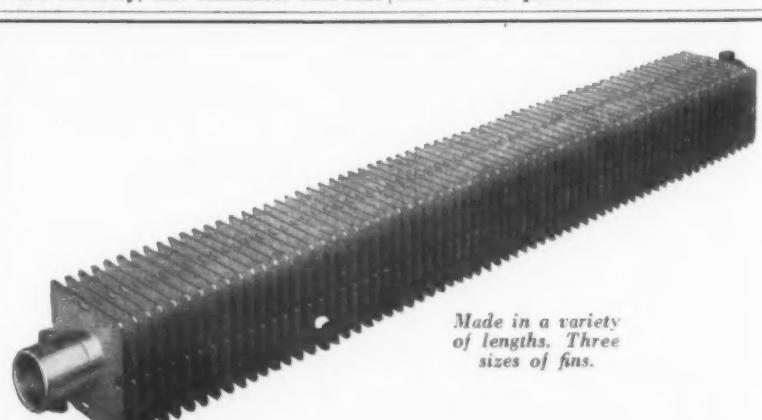
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Downey Tells Developments of Lighter Insulated Truck Bodies

DETROIT—Defining the problem of refrigerated truck transportation chiefly as "making the payload pay more profit," Joseph T. Downey of the Balsa Wood Co., New York, described developments of his company which tend toward lighter bodies, in a talk before the "Refrigerated Truck" session of the Detroit A.S.R.E., on Feb. 15.

"As a producer of one of the many insulating materials, we have been striving to work out details of construction whether it applies to bodies or shipping containers that would permit of light and substantial construction," he said.

"Any weight saving effect in body construction pays the operator a double-fold return," he showed. "First, in permitting a material increase in the payload, which after all is the profit producing end of the business, and a substantial saving in truck maintenance and operation, assuring longer life and less depreciation."

Lists Construction Advantages

For Lata Balsa Wood, Mr. Downey claimed the following advantages: First, good insulating value; second, structural strength; and third, its lightness. "A combination of these characteristics makes possible the elimination of all structural bearing members," he said.

For some time the idea of angle iron construction was considered, it having been proven satisfactory in container construction with lighter metals such as duralumin and aluminum, he stated.

"We were convinced in our own minds, but it was rather a difficult problem to sell successfully the idea to the body builders or truck operators because it was extremely radical," he continued.

Explains Physical Characteristics

Mr. Downey then turned to an explanation of the physical characteristics of Lata Balsa Wood as a means of illustrating the main features of the body.

"Lata Balsa Wood has a density of from six to seven pounds per cubic foot, and a tensile strength of approximately 4,000 lbs.—about one-half the strength of spruce. The thermal conductivity of the insulant is 0.31 B.t.u. per hour per degree Fahrenheit, per square foot per inch thickness," he said.

When starting out on the problem of insulating efficiency, it was believed that one of the chief desires of the refrigeration industry was to obtain unbroken insulation throughout, he related.

Eliminates Hardwood Framing

"This could only be accomplished by eliminating all of the usual framing members. Lata Balsa was found to permit the elimination of hardwood framing and other objectional features because of its structural strength.

"For more than six years truck bodies have been built in which Balsa Wood has been used as the insulating material. Recent inspection of some of the first bodies has shown that the Balsa Wood has not been affected by continuous use under severe conditions, and still retains its efficiency," he claimed.

However, while these bodies have used large panels of Lata Balsa Wood for unbroken insulation, none have been built, to our knowledge, in which all the hardwood framing has been eliminated. It was our desire to have such a body built in which there would not be a single hardwood member for structural support, he announced.

Describes Actual Construction

"To give a more accurate description of this body, I will describe one recently constructed by the Supplee-Wills-Jones Co. for the Solid Carbonic Co., which body has been in operation for 12 months.

"The overall specifications of this body are 18 ft. 8 in. in length, 8 ft. in width and approximately 4 ft. in height. This length offered another and unexpected test of our method of construction as Balsa is not available in lengths over 16 ft. and in manufactured Linderman joint panels over 14 1/2 ft. in length.

"It was, therefore, necessary to make up the length in two sections of Lata Balsa.

"Sketches were submitted the All-Balsa construction in which the large panels representing the top, bottom, sides, ends and partition are assembled as seven separate units. These are fitted snugly together and placed in a light angle iron bed," he explained.

The walls of the sides and ends are built up of two layers of 3-in. Lata Balsa Wood, the bottom of a 4-in. and a 3-in. panel, and the top and partition of a 3-in. and 2-in. thickness. The total thickness of the Lata Balsa Wood in the top and partition is 5 in. in the sides and ends 6 in. and in the bottom 7 in.

With the exception of the top, the two thicknesses of Balsa are cross-banded construction for added strength. In the top both layers run across the top from side to side to add rigidity and give lateral strength. This is essential as there are no side doors and all handling of the solid CO₂ is through top hatches.

The two thicknesses of Balsa are bonded together with special waterproofing and pegged with hardwood

dowels. The corner joints are broken or staggered, and fit securely into place to reduce heat leaks. There is no lessening of insulating efficiency at the corners through heat leaks or by cutting down on the thickness of insulation, Mr. Downey claimed.

The panels are assembled, making what may best be described as an enormous Balsa box, to all intents water- and air-tight. Following this, openings for hatches are cut out of the solid Balsa Wood. These cut-out pieces are used in the construction of the hatch covers.

The assembled body is placed in a light angle iron bed with an oak subfloor. The body is covered with heavy waterproofed canvas inside and out. The angle iron bed has seven oak-filled channel irons welded to it and extending laterally across the body. To these channel irons are attached the two longitudinal 8-in. oak sills to which the chassis is fastened with hook bolts for easy assembly.

Sheets of aluminum give final protection to the outer surface of the body.

These are held in place by corner angle irons and by aluminum moulding, he explained.

The Balsa body is held securely to the bed by means of 21 1/2-in. tie bolts which extend from the top of the body through the metal bed and subfloor.

These are driven through slots cut between the two layers of Lata Balsa in the sides, ends, and partition. As these run parallel to, and between, the two thicknesses of Lata Balsa, there is little possibility of a heat leak or of conduction, he claimed.

Bolts Add to Rigidity

There are six lateral tie bolts that run from side to side, giving added rigidity to the body. These also run through the center of the insulation.

Each of the two compartments are completely lined with hardwood. This is a departure from the usual insulated body procedure in which a metal pan is often the method of inside protection. However, this body is adapted to receive this metal lining rather than the hardwood lining if preferred, he explained.

The hardwood lining is screwed to hardwood strips imbedded in the insulation panels. The floors are of 1/2-in. thickness, and set in 1/2 in. of asphalt. The flooring is calked in a manner similar to the deck of a boat. The sides and top of the inner compartments are

Reads Print Through 5 Metal Thicknesses

Nickel has been made in such thin sheets that it has been found possible to read print through five thicknesses of the metal placed a few millimeters apart.

These nickel sheets were displayed at the Royal Albert Hall, London, during a recent exhibition.

The thin sheets were made by electrodeposition nickel upon copper and then plating copper upon nickel—a nickel sandwich. The copper was then dissolved away, leaving the nickel. Copper was required on both sides to equalize the stresses caused during the dissolving of the copper, which might have ruptured the nickel film.

lined with 1/2-in. thickness of wood tongued and grooved and coated with heavy waterproof, according to Mr. Downey.

On this body there are three large hatches in the top, two in the forward compartment and one in the rear. These permit speedy handling of the solid CO₂, he said in conclusion.

MIAMI HOME CONDITIONED BY 4 FRIGIDAIRE COOLERS

MIAMI, Fla.—Just completed by the Domestic Refrigeration Co. of Miami, Frigidaire distributor, is an installation of four units of air conditioning equipment in the residence of Col. E. H. Green on Star Island. Four model U-1 Frigidaire room coolers, operated by three Model F-W 4150 Frigidaire compressors were used.

The unit in the Colonel's office, together with the unit in the lounging room above, are operated by one compressor, through a series of accessible valves.

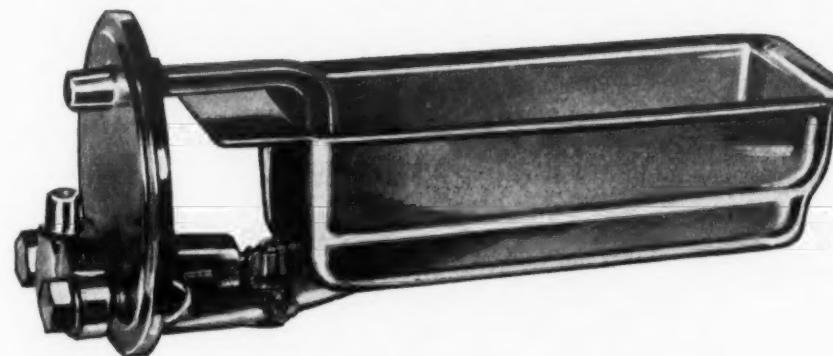
The third unit, in Mrs. Green's sleeping room, is operated on one compressor and controlled by a combination switch located in a convenient position whereby the fan or the entire unit may be used at will.

The unit in the Master's room operates in the same way.

The V-1 cabinets were installed with the ground coat, to be finished in colors and finishes selected by the purchasers.

This installation was made in a similar manner as the one at Col. Green's home on Cape Cod, which convinced the purchaser that he could obtain properly conditioned air.

STOP the needless servicing of OIL-STARVED compressors



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COMPRESSORS that gasp for oil, that wear out prematurely ... they add nothing to your reputation, but they do add to your service expense. Of course you're working constantly on this problem. But can you afford to spend years in development right now? It took us years to lick the problem of oil return ... but we licked it for once and for all (at least that's what some of the leading refrigerator manufacturers tell us). Laboratory tests show that the Fedders Bucket Float Assembly, every 24 hours, returns many times the amount of oil which the compressor crankcase will hold. That's what we mean by positive oil return.

Every part of the Fedders Bucket Float Assembly is built to the highest standards. Every part was constructed of many different materials before we decided on the ones we're now using. Tolerances are held to very close limits. The cartridge-type, needle-seat assembly is constructed of special metals that resist both corrosion and erosion. The bucket, constructed of special metal, insures perfect operation under wide temperature changes.

The Fedders Bucket Float Assembly is spun and sealed in the header shell, eliminating all possibility of change in adjustment after the refrigerator is installed. The Fedders Bucket Float Assembly, combined with other quality parts, will end your troubles.

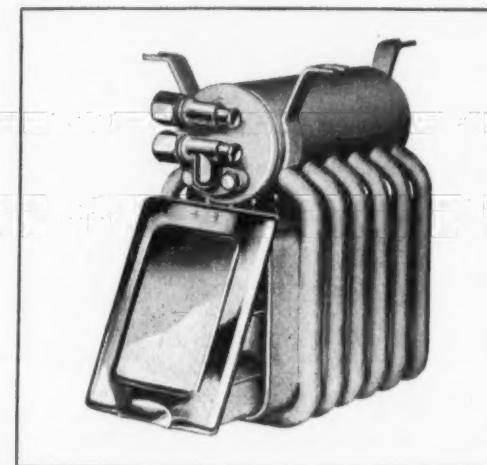
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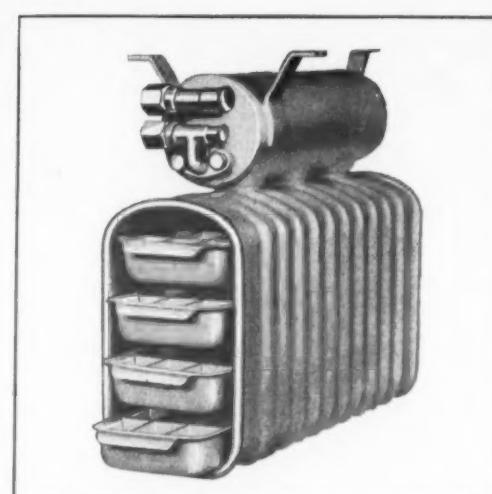
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Fedders also manufactures Dry Expansion Domestic Evaporators, Flooded and Dry Types of Commercial Evaporators, Ice Cream Cabinet Cooling Units, Continuous Tube Condensers, Liquid Filters and Suction Strainers, Dehydrators, accessories and fittings. Let us send you technical bulletins describing these.

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The Fedders Tube-type Flooded Cooling Unit is famed for its performance and service-freedom. Used by many of the leading refrigerator manufacturers. Constructed of non-corrosive copper and brass. Equipped with the Fedders Bucket Float Assembly. Smooth silver-satin finish. Heavy door is chrome plated.



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F E D D E R S

STANDARD REFRIGERATION APPLIANCES

Use of Aluminum in Truck Body Construction Explained

Willard Discusses Advantages of Construction, Insulation

By John R. Willard*
Aluminum Co. of America, Pittsburgh, Pa.

THE use of aluminum as a material for the construction of truck bodies, tanks and allied equipment has increased steadily during the past three years. Operators of all types of commercial vehicles are becoming weight conscious; competition has caused them to consider the increase of pay load and a decrease of dead load. The downward trend of state highway limitations has forced them to reduce gross weight and to limit overall dimensions.

The solution to such problems has been placed squarely into the hands of designing engineers to put equipment on the road that will carry the biggest payload and still be within the legal limits of size and weight. Taking their cue from the airplane designer, the step for them to make has been in the direction of the light, strong alloys of aluminum which weigh only one-third as much as steel.

Alloyed Aluminum Used

Aluminum is known to have been used for truck bodies as long as 20 years ago, but only for such non-stressed parts as panels, roof sheets and trim. Its acceptance by truck body designers awaited the development of stronger alloys and their availability in all applicable forms.

Commercially pure aluminum, due to its relatively low strength, is seldom used in motor vehicles. It is usually alloyed with small percentages of other elements to improve its physical properties, hence its utility, in this field. The most common alloying elements used are copper, manganese, magnesium and silicon.

In addition to the use of alloying elements, the strength of aluminum alloys may be further increased by means of heat treatment. In the case of certain wrought alloys strain-hardening or cold-working is used to produce increased mechanical properties rather than heat treatment.

In designing commercial motor vehicles,

*Talk given before the "Refrigerated Truck" session of the Detroit Section of the American Society of Refrigerating Engineers, on Feb. 15.

the highly stressed members may be of heat treated aluminum alloys which have strength characteristics comparable to structural steel.

For example, the alloy commonly called Duralumin, which we designate as 17ST, has the following average mechanical properties: Ultimate strength, 58,000 lbs. per sq. in.; yield point, 35,000 lbs. per sq. in., and elongated 20 per cent in 2 in.

Normal Composition of Alloy

The normal composition of this alloy is: copper 4 per cent, manganese 0.5 per cent, magnesium 0.5 per cent, balance aluminum. The maximum mechanical properties are produced by means of heat treatment. This alloy is available in all commercial forms such as plate, structural shapes, tubing, rivets, bolts, etc.

The non-stressed parts of a truck body, such as the roof, side panels, etc., are normally made from one of the non-heat treat alloys, such as 3S which depends on cold working for its mechanical properties.

This alloy, which contains 1 1/4 per cent manganese, balance aluminum, does not have mechanical properties as high as 17ST, but since strength is not a requisite here, 3S alloy is better adapted to these parts because it is more readily workable.

Alloys such as 3S, in addition to their more desirable fabricating characteristics, are also somewhat less in cost.

Commercial motor vehicles of almost every size and description have been built of aluminum during the past few years. In nearly every instance, a careful analysis has been made which tells an interesting story of weight saving

and its cost. Certain general conclusions may be drawn which apply, whether these vehicles are used to carry coal, freight, or gasoline, or whether they carry perishable products such as meat, vegetables, or dairy products.

Shows 50% Weight Saving

For convenience, these may be divided into two general classes: bodies designed for the transportation of solid commodities, and tanks designed for the transportation of liquid commodities.

In the former case, aluminum replaced wood and steel. An all-aluminum body built to replace an all-steel body will show a weight saving of from 50 to 65 per cent, and the additional material cost should be around 20 cents per lb. of weight saved.

It is a matter of simple arithmetic to show the reason for this; in an aluminum body, one pound of aluminum at an average cost of 36 cents per lb. will replace approximately 2 1/2 lbs. of steel at 2 cents per lb. The direct difference in cost is, therefore, 31 cents. But, 1 1/2 lbs. of weight has been saved, therefore the additional cost is 20 cents per lb.

On this basis, the additional material cost of an aluminum body where 1,000 lbs. has been saved will be roughly \$207. The fabrication cost of a conventional type of aluminum body is generally equal or less than for a steel body, but it does not necessarily follow that aluminum bodies can be purchased at an additional cost of 20 cents per lb. of weight saved.

Cost Difference Undetermined

The body builder is entitled to a larger margin of profit due to the larger inventory investment, and the sales cost of a higher priced product. In addition, aluminum bodies, being higher grade, rightly are receiving better workmanship and more careful supervision.

It is much more difficult to draw a definite weight and cost comparison between aluminum and wood bodies, because the cost of a wood body depends quite largely on the class of workmanship employed. The material cost of an aluminum body will be higher, but the fabrication cost will be lower, hence they are within competitive price ranges.

Advantages of Aluminum

The principal advantages of aluminum bodies may be considered under four different headings: weight saving, sanitation, low maintenance cost, and high residual value.

The weight saving effected by aluminum bodies may be taken advantage of by two means, increased payload within the same gross load limit, or reduction in dead weight on the same size body permitting the use of a lighter, therefore cheaper, chassis. By either method the results are lower costs per ton mile.

The fact that aluminum is non-toxic, that it does not impart a metallic taste, that it is a homogeneous metal with no plated or coated surface to wear off, permits it to be classified as sanitary. It is, therefore, ideal for bodies which are to be used for handling food products.

Resists Atmospheric Corrosion

The low maintenance cost of aluminum bodies is principally due to its high degree of resistance to atmospheric corrosion. Therefore frequent painting is eliminated—another saving which may be applied against the debit of increased first cost.

If a steel body has to be scrapped due to a wreck or to obsolescence, it is practically worthless. On the other hand, a scrapped aluminum body will have a residual value of several hundred dollars.

Aluminum vehicles in the other general classification, that is transport tanks, may be compared as to weight and cost in much the same way as the above comparison of truck bodies.

Increases Gasoline Payload

In the case of gasoline transport tanks, where aluminum replaces ordinary grades of steel, the cost per pound of weight saved is similar to that given in the truck body analysis, probably a little higher. The same advantages may be used to justify the higher first cost.

Where increased payload is desired, as is usually the case, it has been found that 20 per cent more gasoline per trip may be carried by an aluminum tank without any increase in the gross weight. For example, a steel tank carrying 2,000 gal. may be replaced with an aluminum tank having 2,400 gal. capacity without increasing the total gross weight.

Aluminum transport tanks for hauling milk and other food products have recently been developed, the first units in this country having been placed in service in October, 1930. In the milk transportation field, aluminum is in competition with glass lined steel and stainless steel.

A recent check on several units indicated that, considering the gross load equal in all cases, aluminum units will have about 11 per cent more capacity than glass lined steel tanks, at a slightly increased cost.

Compared to stainless steel milk tanks, aluminum will have about 5 per

cent more capacity and, in addition, will be appreciably lower in first cost.

In going back over the history of the development of aluminum truck bodies and tanks, it is significant to note that one of the first all-aluminum truck bodies in this country was an insulated body, built in 1928. During the past four years, quite a large number of insulated bodies and tanks have been constructed.

Insulated Body Field Important

Aluminum construction is of even greater importance in the insulated vehicle field than it is in the non-insulated types of bodies and tanks. In the first place, the use of any kind of insulation increases the weight of the body, primarily because it complicates the design due to the necessity of double walls, double floor, double ceiling, and a suitable framework for attaching these.

The weight of the insulation, ice trays or refrigerating systems also add to the dead weight and thus decrease the payload.

In addition to the consideration of weight, the insulated body or tank must be sanitary since food products are the chief commodities hauled. Aluminum, which is non-toxic and easy to clean, is more nearly ideal for handling food products than any other material. These factors of light weight and sanitation are of prime importance in insulated bodies.

The design of insulated bodies offers a challenge to the ingenuity of the body engineer as well as the refrigerating engineer. Various methods of obtaining efficient thermal characteristics combined with a maximum amount of payload have been cleverly worked out.

Types of Insulation Used

Practically all of the well-known insulation materials have been used in connection with aluminum vehicles. These insulating materials may be roughly divided into two classes; the rigid type, or those possessing structural strength, and the non-rigid type which have little or no structural value.

In the former class may be included such materials as cork and Balsa Wood, while in the latter class may be considered blanket type insulators and aluminum foil.

The selection of the proper material for insulation is dependent on many variable factors. Each kind possesses certain advantages over others used in truck bodies and tanks, ranging all the way from price to efficiency.

Aluminum Foil Insulation

Aluminum foil insulation, although only recently introduced into this country, appears to have some interesting possibilities in the motor vehicle field. Inasmuch as light weight and sanitation are among the chief requirements for equipment of this type, it is only natural for the designer to be interested in this new "all-metal" insulation.

Its characteristics may be summarized as follows:

- Extremely light weight (3 oz. per cu. ft. of insulation).
- Sanitary because it does not absorb moisture and thus promotes bacterial decay.
- Vermin-proof.
- Will not support combustion.
- High thermal efficiency.
- Low heat storage capacity.

The principle of aluminum foil insulation is entirely a new one. It should be of particular interest to engineers since it is an engineering development, in contrast to most types of insulation which are good insulators in their natural state.

Utilize Reflectivity of Metals

By means of a thorough understanding of the various methods of heat transfer, engineers have been able to utilize to good advantage the high reflectivity of polished metals.

Aluminum is particularly well suited for the purpose because it combines the necessary reflectivity with low thermal capacity and the greatest surface stability.

About 95 per cent of the radiant heat which falls on a polished aluminum surface is reflected. This information, coupled with the knowledge that still air is a superior insulator, left the engineer with only the relatively simple matter of efficiency combining these two facts into a new kind of insulation.

The simplest method of applying aluminum foil insulation to motor vehicles is to crumple it, so as to produce irregular ridges and valleys. These crumpled sheets are then placed one on top of the other with an average space apart of about one-third inch.

Due to the irregularity of these ridges and valleys, the number of contact points is reduced to a minimum, and the foil provides its own spacing. The foil used for this purpose is approximately .0003 in. thick. One pound is sufficient to produce about 60 board feet of insulation.

As mentioned before, aluminum foil itself adds no structure value to the vehicle. Its own inherent strength, however, is sufficient to hold it into any position or shape in which it has been spaced. It is strong enough to sup-

port more than a mile of its own length, and many tests have shown that it withstands vibration well.

Foil Application Easy

The application of foil to a truck body or tank is not a difficult matter. It is often easier to install in certain types of equipment than the rigid type of insulation. In the conventional type of van body, the crumpled foil merely is laid on the sub-floor and on the interior roof sheathing.

The side walls are insulated by suspending it on wires or wooden strips between the side posts. In order to prevent heat flow through the vertical posts of such a body, both the side and end posts are staggered to break up the continuity.

The use of insulated vehicles in this country is rapidly increasing, particularly in the dairy industry. A recent editorial in REFRIGERATED FOOD NEWS stated: "Refrigerated trucks will further the cause of good health through consumption of good milk, kept at proper temperatures during the periods in transit, which are sometimes weak links in the chain of protection by refrigeration."

Government Pure Food laws and even local authorities are rapidly taking steps to force operators to use insulated bodies. In addition, these same authorities are increasing the sanitation requirements on all types of equipment which are used in connection with food products.

Pittsburgh Truck Ordnance

The City of Pittsburgh, department of public health, bureau of food inspection, recently passed the following ordinance:

"On and after April 1, 1932, no milk will be permitted to be hauled into the City of Pittsburgh except in a closed and insulated truck. Any new trucks purchased prior to 1932, must be of this type."

In further explaining this regulation, they state:

"The proper type of closed insulated truck for the above requirement would be one which has a metal lining throughout; and which is so built that an ice compartment can be easily installed. It should be so insulated that in the event ice is required, it will take a minimum amount to keep the truck at a temperature of 50° for a period of 24 hours. We are advised that this would probably mean insulation equivalent to not less than 3 in. of cork. We are not interested in the insulating material used, but simply use cork as an example of the amount of insulation that is thought necessary."

Since the above regulation was passed, 48 new insulated bodies have been built in the Pittsburgh district. Of this number 20 have been all-aluminum bodies and, in addition, five have used aluminum panels throughout.

ALLEN-BRADLEY CONTROLS FEATURED IN SHOW

CHICAGO—An extensive exhibit of motor control equipment is being made by the Allen-Bradley Co. of Milwaukee, on the fifth floor of the Engineering Bldg., at 205 W. Wacker Drive. It consists of several hundred pieces of Allen-Bradley control equipment, ranging from their smallest photoelectric relay and push-button stations to their largest high-tension automatic starters.

The complete line covers standard duty, water-tight, dust-tight, and explosion-proof equipment. The control circuits of the control devices on display are connected to power feeders so the visitors can observe the operation of the equipment.

The exhibit is in charge of Eugene F. LeNoir, assisted by several members of the Allen-Bradley engineering staff, who, during the four weeks of the exhibit, are giving frequent talks before groups of engineers and students.

RAYON SPECIALISTS ORGANIZE CONSULTING FIRM

NEW YORK CITY—Announcement has been made of the formation of the firm, Hathorne & Green, with offices at 114 East 32nd St., the purpose of the firm being to act as "consultants, specializing in rayon." Partners in the firm are Berkeley L. Hathorne and Henry Green, formerly of the Tubize Chatillon Corp.

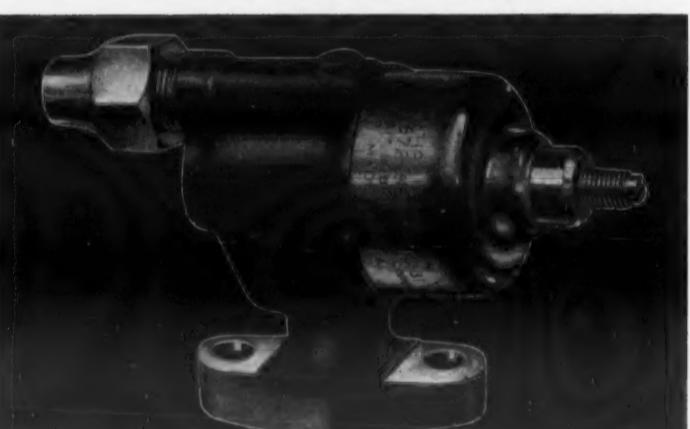
They will continue to serve the Tubize Chatillon organization in a consulting capacity. Prior to their formation of the new concern, the two men were in charge of the technical service laboratory of the Tubize Chatillon Corp.

BAKER CO. SELLS ICE PLANT IN IOWA

HUMBOLDT, Iowa—The Humboldt Artificial Ice Co. plant here, owned and operated by the Baker Ice Machine Co., Omaha, has been sold to H. S. King, Omaha, who has taken possession.

Mr. King will increase the capacity of the plant to six tons, he announces.

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Application of Gasoline Engines in Driving Compressors Explained

By A. H. Quade*

Detroit Representative, Briggs & Stratton Corp.

THERE has been much discussion of power for mechanical refrigerated truck bodies, and many different sources of power have come up in this phase, the gasoline engine being one of the popular types.

To cope properly with requirements for gasoline power on trucks, it is apparent that there are three major facts to be considered in selecting a proper and satisfactory power unit. These three facts may be classified as weight, displacement, and cost.

Added Weight Lowers Payload

In taking the weight of a power unit into consideration, its importance to the installation has a direct bearing inasmuch as every pound of its weight in the body detracts from the payload, and also adds to the gross weight of the complete body.

In regard to the displacement, or mounting space of the power unit in the body, this fact also bears directly on the unit since the size of the unit space in the body, in proportion to the useful loading space, is an important factor—especially in a small body.

The cost of a power unit is of no little importance. It should be in proportion to the rest of the mechanical equipment required in a refrigerated body.

Gasoline Motor Used

The mechanical side of these installations perhaps bears more interest and will create much criticism depending upon the facts of simplicity, balanced operation, and service of the unit.

The generating unit type of power usually consists of a gasoline engine directly connected to a generator, which in turn furnishes current for an electric motor, which is conventionally mounted on the condensing unit.

From a practical observation of this type of power it can readily be seen that the size of a generating unit, the displacement of this type of unit, and the cost would not harmonize with the ideas of those interested in a mechanical body.

In tracing the power application of this type of unit through, the gasoline engine performs the duty of generating electric current through a generator, then is transferred and applied to an electric motor on the condensing unit. The power loss of this type of unit, and the efficiency are very low, considering the several stages that the transmission of power has to go through.

Used as Direct Power

Another example of power application to a condensing unit has been worked out by placing the gasoline motor directly on the condensing unit chassis, and driving the compressor through a gear reduction. This has been a very practical method of applying power to compressors, but in the instance of the condensing unit the problem of driving a fan sufficient for cooling capacity of a condenser can bear considerable experimental work.

The most common application is that of applying or mounting the gasoline motor directly on the condensing unit chassis, and driving the compressor by means of a V belt.

Losses Through Belt Slippage

In this method of power application, the power is directly applied to the compressor, the only loss in efficiency being through the loss created by belt slippage.

This installation is also quite simple, the gasoline motor replacing the electric motor, and in the case of a small air cooled gasoline motor, it requires no more space than the electric motor, and operates at practically the same speed as the electric motor. The cost of this type of installation is also fairly low, the only essential change being necessary is the substitution of a mounting plate.

Three Classes of Motors

The operation of these units powered by gasoline motors may be divided into three classes, as follows:

1. *Manual Control*, where the operator manually starts the gasoline motor and stops it when the necessary amount of refrigeration has been reached.

2. *Semi-automatic Control*, where the gasoline motor is manually started, and automatically stopped by the temperature control switch, when a pre-determined low temperature has been reached.

3. *Automatic Control* in which the gasoline motor operation is entirely automatic, starting when the set high temperature is reached and stopping when the set low temperature is reached.

The automatic gasoline motor as built by the Briggs & Stratton Corp. consists of a standard four-cycle, air cooled gas-

*Talk given before the "Refrigerated Truck" session of the Detroit Section of the American Society of Refrigerating Engineers, on Feb. 15.

oline motor equipped with the conventional starting motor as used on automobile and truck motors.

Provided in connection with the automatic starting of the motor is an automatic choke. This choke functions entirely by the starting motor circuits and a thermo control, which regulates the amount of choke necessary by temperature conditions.

Use Standard Auto Switch

The starting switch used in connection with this unit is a standard automobile type switch, which the company has built for the past 10 years for the automotive trade, and is adapted to this unit by means of an additional solenoid action, which becomes operative by temperature control of the refrigerated truck.

In case of a failure of a start due to failure of ignition, or lack of gasoline, the starting battery is protected by a time limit switch, which permits of a pre-determined length of time of cranking and then releases.

In case of failure, this same circuit can be connected to a signal light so as to indicate to the driver, should be away from the truck at the time of failure, that the cycle of starting has failed.

Power Clutch Developed

To have the gasoline engine in a neutral or non-load position when starting, an automatic power clutch has been developed, which is furnished with the automatic gasoline motor. It depends only on the force of gravity for its operation.

This clutch is set at a pre-determined pick-up load speed, and remains constant at this setting until abnormal wear and use will require resetting, which can be done with one adjustment.

In our experimental work we have been requested to provide facilities for the use of this equipment with an electric motor for garage installations where the running of a gasoline motor would be against local ordinances, and in this connection the automatic clutch works out to a very good advantage.

Truck Gas Supply Used

The clutch acts as a free wheeling member when the unit is being driven by an electric motor, and by applying this same clutch to an electric motor the operation is reversed so that when the gasoline motor is driving the motor, it acts as a free wheeling member on the electric motor.

In order to make this installation as simple as possible we have utilized the storage battery furnished on the truck. The gasoline supply is taken from the regular gas tank on the truck by means of a vacuum tank.

In some installations the gas tank is carried above the mounting of a gasoline motor, and the connections for gasoline are made direct without the use of a vacuum tank.

In closing we might say that this company is not limited to the production of an automatic motor only, but is offering it as a development to meet the demands of the various manufacturers. We have several thousands of our motors on compressor installations, both of the straight manual type, semi-automatic type, and full automatic type, and from our experience we feel that there is a place in the industry for all three types.

2,500 R. & H. EMPLOYES MEET FOR SAFETY SHOW

NIAGARA FALLS, N. Y.—More than 2,500 employees and members of their families attended the second annual R. & H. Safety Show, held in the Niagara plant of the Roessler & Hasslacher Chemical Co., Inc., recently.

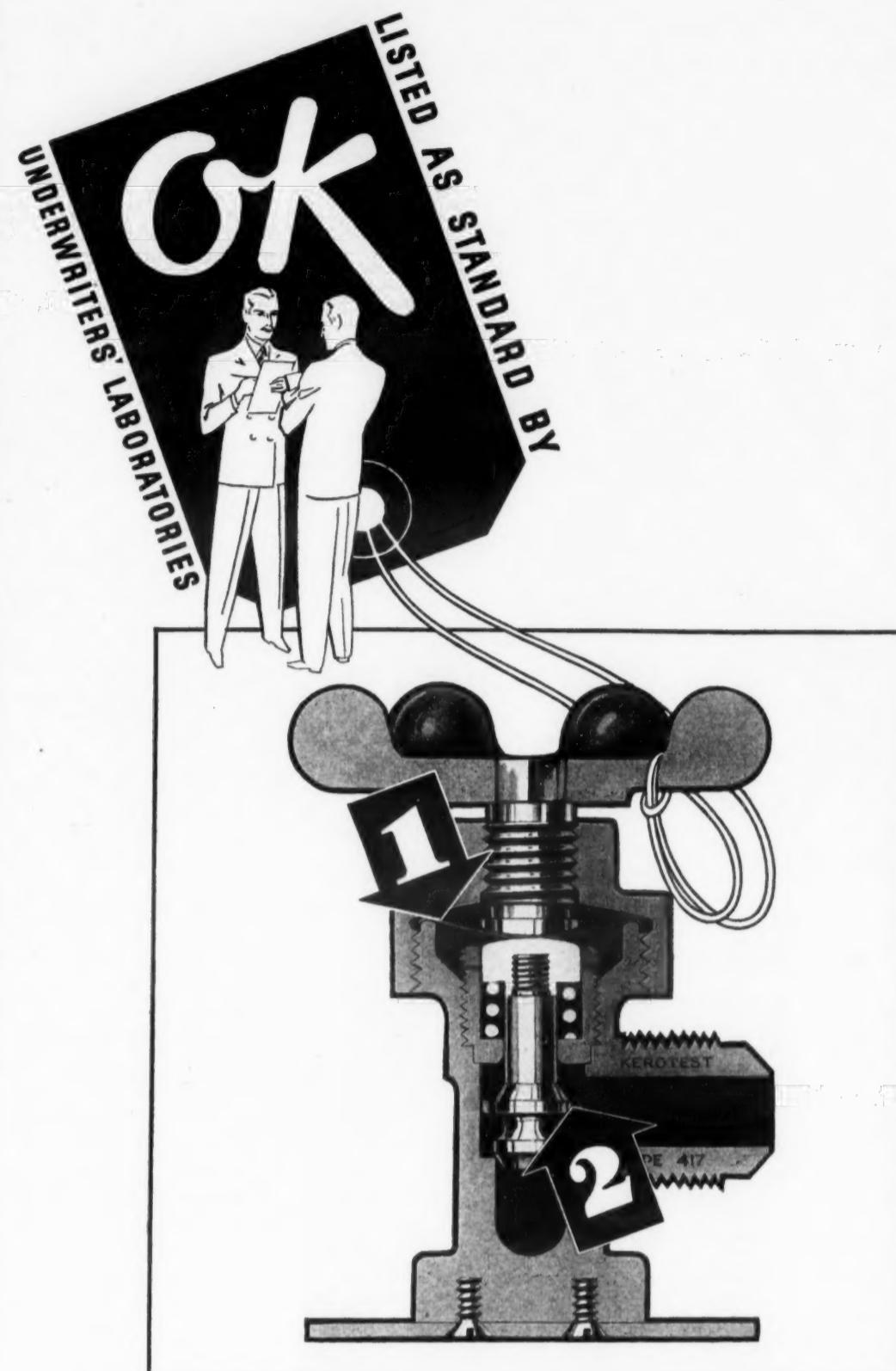
Announcement was made that in January the plant had won the du Pont general manager's prize for operating over a period of 264 days without a lost-time accident. At the time of the show, the period worked without a lost-time accident was 285 days.

Speakers at the show included Dr. E. A. Harding, development division manager; Leslie M. White, manufacturing division manager; and Donald O. Notman, service division, who stressed safety in home life, community life, and the factory.

Cups were awarded to five departments for especially good safety records, and certificates were given to 21 other departments which had 100 per cent safety records. First-aid demonstrations, musical, and dance numbers formed part of the program.

NEW REFRIGERATION COMPANY STARTED IN PITTSBURGH

PITTSBURGH—Greenwood Commercial Refrigeration Co. has been organized, here, by F. X. Holland, 230 Edward Ave., Mt. Lebanon, Pa., and A. R. Greenwood, 4760 Wallingford St., Pittsburgh, to manufacture ice-making and refrigerating equipment.



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Editorial Aims of the News

- To encourage the development of the art.
- To promote ethical practices in the business.
- To foster friendly relations throughout the industry.
- To provide a clearing house for new methods and ideas.
- To broadcast the technical, commercial and personal news of the field.

An Embryo Giant

AT THE recent meeting of the Detroit Section of the American Society of Refrigerating Engineers in which the subject, "Refrigerated Trucks," was discussed, there were present some 150 men representing body builders, chassis builders, refrigeration manufacturers, insulation manufacturers, small gas engine manufacturers, and users—and apparently very few of them agreed as to how a refrigerated truck should be designed, refrigerated, or insulated.

Evidence of the Preliminary Stage

That the refrigerated truck is in the preliminary stage of development is evidenced by the great number of designs which are being offered. The position of refrigerated truck engineering can be likened to that of air conditioning, where the various makes of equipment differ widely in physical appearance.

The method of refrigeration is one of the focal points of interest. Solid carbon dioxide, when first introduced, was thought by many to be the answer to this problem. But, like many things which appear simple in theory, it gave rise to a host of problems when put into practice.

Some Problems in Refrigeration

It supplied plenty of refrigerating effect. In fact, it produced temperature conditions too low for the ordinary load, making temperature control difficult. Later came questions of correct placement of the container or bunker, of proper distribution of the cooling effect, of the correct manner of escapement of the evaporated carbon dioxide gas.

Due to the ceaseless activity and practical research of the engineers who have worked on these problems, most of them have been solved, at least partially. However, the engineers are by no means confident that they have mastered all of the major problems connected with the use of solid carbon dioxide. They are not even sure that they are utilizing it in the best possible manner. For example, recent development discards the idea of using the solid carbon dioxide directly as a cooling medium and utilizes its escaping gases in a cooling coil.

A Search for a Source of Power

The mechanical unit for truck refrigeration is a comparatively new development. Engineers of firms manufacturing commercial refrigerating units differ in the matter of the power drive for

the compressor. Various ways have been devised to furnish power—the auxiliary gas engine, storage battery, plug-in on power lines at stop-off stations, and power take-off from the truck engine by gear reduction or some other mechanical method.

Builders of trucks who have experimented with the mechanical unit assert that the refrigerating engineers have problems to consider in addition to the matter of the power drive. They state that the ordinary unit, designed for stationary service, is not hardy enough to stand the wear and tear of truck use; that it demands too much servicing; is far too large a piece of equipment for the amount of work that it does; and that its cost is out of line with the cost of other automotive parts.

Large-scale Operations Will Help

It would seem that difficulties emphasized by the truck builders are, for the most part, problems which can be conquered easily when the production of trucks reaches any sizeable scale. The various parties interested in the mechanical refrigeration of trucks have already brought their forces to bear on some of the questions advanced by the automotive people.

The newest method of truck refrigeration, that of the "cold hold-over" or use of eutectic brine, is too new to allow for any criticism based on actual results.

An Old Controversy Renewed

In the matter of insulation an old controversy is renewed, with several new phases tacked on. The recent advent of aluminum foil insulation merely intensifies the situation. The exponents of the rigid and non-rigid types of insulation both have distinct and plausible arguments. Firms in both camps have gone ahead in research and practice to solve problems of heat leakage, proper thicknesses in top, bottom, and side-walls, interior and exterior sealing, and structural qualities. Their work has made possible the use of refrigerated trucks in a practical way today.

There seems to be no agreement on the matter of body design.

Some builders think the refrigerating unit should be in the front, others delegate it to the rear, while a few endeavor to save space by putting it under the body. Each design is aimed to create the maximum payload and, at the same time, provide for accessibility and other requirements.

Many Interested Parties

The number and varied nature of the concerns interested in the refrigerated truck add to the complexity of the situation. Food packers and large ice cream manufacturers, in urgent need of equipment, have worked out designs according to their special requirements. Refrigeration companies, eyeing the field with a view to making a complete product are collaborating with some of the large automotive interests. Insulation companies sensing the large potential market for their product, are making a serious study of body design. The large truck builders seem to be waiting for the refrigeration principles to be perfected by others.

Most of the trucks that have been built so far have been constructed on a "single unit" basis, and this is the main reason why the original cost at the present time borders on the prohibitive. There have been few manufacturing operations predicated on long-time or large-scale programs.

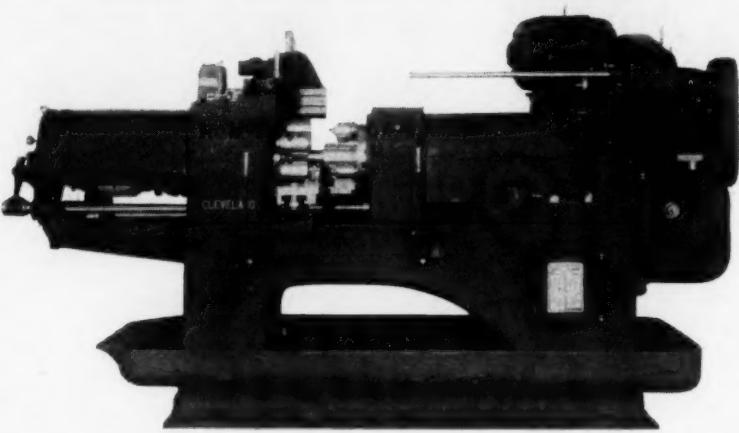
Waiting for a Leader

For a really thorough test of engineering principles in such a product as a refrigerated truck, it will probably be necessary to construct and operate a fairly large fleet. The cost of such a test represents a very sizeable financial undertaking. The type of concern able to produce or use a large number of refrigerated trucks will probably want to be very sure of its ground before making the expenditure.

There is a growing demand for these trucks among transporters of perishable foods, however, and it would not be at all surprising to see some firm step out and risk a large-scale development.

Engineering and production executives are rapidly gaining confidence with continued research and experience and would gladly accept the challenge of such an order.

New Spindle Bar Machine



This new piece of equipment was introduced recently.

Cleveland Automatic Machine Co. Adds Six Spindle Bar Models to Line

CLEVELAND—The Cleveland Automatic Machine Co. has just announced the addition of six spindle bar and chucking machines to its line of multiple four-spindle machines.

The spindle and tool turret housings are cast integral with the main bed casting, made from nickel alloy and provide rigidity and good alignment, its designers claim. Ample chip space has been provided and provision made for their removal while the machine is in operation, either through an opening under the work spindle head or from the rear of the machine.

The power clutch is assembled in the main drive head which is mounted at the right hand end of the machine, with the control lever to apply the power conveniently located to the operating position.

Spindle change gears are provided to cover a wide range of speeds, and are mounted on the outside of the drive head to permit rapid change and when in place are covered by a swing guard. All gears are made from alloy steel forgings with helical teeth, accurately cut and hardened to withstand wear.

The work spindle turret is a one-piece nickel alloy casting, machined all over and ground to size.

Spindles are made from alloy steel forgings, machined and ground, and supported in wide bearings with provision for adjustment to compensate for wear. Anti-friction bearings can be furnished if required.

End thrust is carried on ball thrust bearings seating against the rear spindle sleeve. Force feed lubrication regulated at the source provides the correct amount of oil to each bearing.

The tool turret, cylindrical in form, is supported in the wide bearing of the turret housing and is arranged for six tool positions. It is actuated by cams on the operating drum, acting direct on the cam roll inserted in the periphery of the tool turret, providing direct action against the thrust of the cutting tools.

An auxiliary turret, hexagon in form, is inserted in the center of the main tool turret, and supported on a hardened and ground steel sleeve which passes through the axis of the tool turret and into the work spindle turret, affording six extra independent tool positions for end cutting tools.

Tool slots are cut lengthwise in the six stations, providing longitudinal adjustment and positive alignment with the work spindles.

Threading and reaming spindles are accelerated and operate independent of the tool feed, being controlled by individual levers fulcrumed from the master bracket bolted in the bed of the machine, and actuated from cams fastened to the operating drum.

The threading spindle is equipped with a positive trip controlled by the travel of the threading spindle itself, to insure positive action when tapping close to the bottom of the hole.

Two independent cross slides are provided, one each for the lower front and rear stations. Provision is also made for two double top slides, which are mounted on the work slide turret cap. One slide working in conjunction with the upper rear and top stations and the second slide for the top and upper front stations, affording six tool positions for forming, shaving or similar operations.

Letters from Readers

Information Valuable

Clark & Jones Co.
1913 Third Ave., Birmingham

Editor:

We acknowledge with thanks your letter of the 29th furnishing us with information regarding the new A.S.R.E. Data Book and Catalog.

We would like to take this opportunity to tell you of the great benefit and satisfaction that we are receiving from your paper. The information furnished in your Engineering Section is of unlimited value to concerns similar to our own, and I might state that we are particularly glad to receive the information on F-12 in your last issue.

B. C. MCCOY, JR.
Sales Manager, Refrigeration Dept.

Who Did the Business?

Ignition Service & Supply Co., Inc.
16-17 Central Ave., Albany, N. Y.

Feb. 5, 1932.

Editor:

Will you please be good enough to let me know who did the refrigerator business of the United States, that is, what percentage did General Electric do and what percentage did Frigidaire do, Majestic, Norge, Kelvinator, etc. If there is any expense attached to this, the writer will be willing to pay for it.

H. J. ZEHNER.

Feb. 8, 1932.

Answer:
Replies to your letter of Feb. 5, no figures are issued by the individual companies, and it is therefore impossible to determine their rank in terms of sales volume.

The total sales of 10 companies having membership in the National Electrical Manufacturers' Association are combined and these figures were published in the Jan. 27 issue of ELECTRIC REFRIGERATION NEWS.

Figures for the entire industry are being published in the Feb. 10 issue and a very complete compilation of all available statistics will appear in the 1932 REFRIGERATION DIRECTORY which will be issued in two or three weeks.

Editor.

Advertising Data

National Association of Ice Industries
Department of Public Relations
163 West Washington, Chicago.

Feb. 6, 1932.

Editor:

I have been a more or less close reader of ELECTRIC REFRIGERATION NEWS since its inauguration, but I do not recall ever seeing a statement of the percentage of sales electric refrigerator manufacturers devote to advertising, nor breakdowns of that percentage into media and into months.

And the percentage of sales that NELA devotes to advertising electric refrigeration.

If you can give me these figures, I shall appreciate it greatly. I inclose a stamped and addressed envelope for your convenience.

ROBERT MCKNIGHT,
Director.

Feb. 8, 1932.

Answer:

Replies to your letter of Feb. 6, we will have some figures regarding expenditures for advertising by manufacturers of electric refrigerators in the 1932 REFRIGERATION DIRECTORY but, in the survey, we did not attempt to get details regarding media and distribution of expense by months.

Editor.

GAS-ICE CORP. LEASES PLANT TRACT

SEATTLE—The Gas-Ice Corp. of Seattle, manufacturing solid carbon dioxide under the trade name "Gas Ice," has taken a 99-year lease of 12,000 acres on the Klakitat River and Klakitat Springs, with plans to construct a new manufacturing plant there.

The machinery building is in the process of construction and the refrigeration machinery has been ordered. The company owns its own hydro-electric power plant on the Klakitat River. Stevens & Koon, consulting engineers of Portland, are in charge of construction of the plant.

SERVICE HINTS

By FRANK W. GRAY

Marine Installations

Service men are sometimes called upon to install refrigeration equipment on board marine craft of various types. The conditions under which marine installations operate are somewhat different than those on land, and provision must be made accordingly.

As to the type of system used, the expansion valve operated dry system is better adapted to marine installations than the flooded system with coils of the evaporator type. Evaporator coils, with the flooded system can, however, be used with satisfaction.

The evaporator should be located parallel to the length of the ship, and as near as possible to the middle, so that the "roll" and "pitch" of the vessel will not interfere too much with the action of the float valve.

Causes of 'Frost Back'

No matter where the evaporator type coil is located on a ship, the movement of the vessel will tend to throw the float open at times, spilling the liquid refrigerant down the suction line, causing a "frost back."

This frosting back can be counteracted by installing a zig zag coil of $\frac{1}{2}$ -in. suction line tubing about 15 ft. long within the refrigerator, between the coil and the compressor.

This crooked coil will retard the back flow of the refrigerant and cause it to evaporate, returning to the compressor in a gaseous instead of liquid state.

The space provided on yachts or ships for the location of the compressor is often so limited that ventilation facilities are inadequate for an air-cooled compressor, and water cooling must be used.

Hooked Up on Water System

The water cooled condenser may sometimes be hooked up to the water circulating system of the ship, requiring no independent circulating pump. If a centrifugal pump is necessary to circulate the water through the condenser, its electric motor should be hooked up to run only when the compressor is running.

Where water-cooled compressors are installed on ships which operate in salt water, special condensers with large circulating tubes should be used to withstand the clogging and corrosive effects caused by the impurities in the salt water.

Such special condensers are built by several manufacturers. An ingenious service man could bend up such a condenser from galvanized iron pipe, using the double tube principle, and making sure to have the pipe large enough so that it would not corrode easily.

Liquid Line Chilling

When large compressors of four or five cylinders are used on large commercial or apartment house systems, the service man will sometimes find that the liquid line tubing is frosting a little ahead of the liquid line strainer.

This chilling of the liquid line would normally indicate that the strainer was clogged up, but on a system of the size requiring a high powered multiple cylindered compressor, this condition is more apt to be due to the fact that the liquid refrigerant will not pass through the screens and filter pad of the strainer fast enough to maintain the high side pressure ahead of the strainer.

For this reason double strainers are advisable in a system of this size, the two strainers being installed in parallel in a loop of the liquid line. And, as has been stated before in this column, the presence of two strainers will also minimize the danger of the system shutting down through the clogging up of a single strainer.

Frosted Sign Displays

When tubing is bent up into letters for frosted sign display, or where overhead "riser" pipes are used in a display counter installation, and connected up with automatic expansion valves, there is a tendency for the liquid refrigerant which lies in the pipes when the machine is shut down to flood down into the suction line when the compressor starts operating.

Since the expansion valve thermostat bulb is clamped to the suction line at the outlet of the coil or frosted sign, this sudden frost back will cause the expansion valve to close by thermostatic action before the refrigeration process is complete.

An intermittent defrosting of the pipes and short cycling of the machine is usually the result of this operating condition. To prevent this an upward bend, or "gooseneck" should be made in the suction line where it leaves the coil.

This "gooseneck" will retard the back flow of the liquid refrigerant and prevent a sudden chilling of the thermostat bulb when the compressor starts up.

It will also cause the refrigerant to be trapped sufficiently to help maintain the system.

Service Service Men Go to School

Service service engineers from all sections of the country attended a service convention conducted from Feb. 8 to 19 by S. R. Cooper (seated at right), national manager.

a frost on the display pipes when the machine is off.

Fin Coil Operation**CUTLER-HAMMER DESIGNS
TIMING WELDING CONTROL**

MILWAUKEE—Cutler-Hammer, Inc., 336 N. 12th St., here, manufacturer of electric control equipment, announces new timing device for spot, projection and other forms of resistance welders.

The manufacturer claims accurate

timing control of the welding operation. Use of an electronic tube, it is further stated, permits an operating range from a fraction of a second up to 16 seconds.

The timing is adjusted by a knob inside the enclosing case.

This new Tube Timing Control operates on 110 to 550 volts a. c., 25 to 60 cycles.

Vibration, severe or intermittent service will not affect the accuracy of this control, the manufacturer asserts.

**DEPENDABILITY MAIN
FEATURE IN ENGINES**

DETROIT—Speaking before the Detroit A.S.R.E. group which devoted its Feb. 15 meeting to the subject of "Refrigerated Trucks," R. B. Harvey of the Novo Engine Co., Lansing, Mich., cited dependability as the prime requisite of a gas engine for driving truck refrigerating plants.

"The next thing is the matter of dead weight, and space that the outfit can take up on the truck," he said. "Also the cost must be kept down."

We have followed the theory that one step at a time in the application of automatic features is the safest way to keep a thing growing, he said.

Developments should be made with very close cooperation by the builder of the body, builder of mechanical unit, and builder of gas engine, Mr. Harvey declared.

"Another matter that may be of interest is the cost of the operation. Charging \$40 or \$50 a year for overhauling the entire unit, we find that the cost can be kept relatively low as compared to other driving mediums," he concluded.

**WILLIAMS CO. ANNOUNCES
NEW DRAFT REGULATORS**

BLOOMINGTON, Ill.—New draft regulators to meet fluctuations in chimney drafts and to maintain the "pull" needed in the chimney are being offered by the Williams Oil-O-Matic Heating Corp., maker of Williams Oil-O-Matic oil burners and Williams Ice-O-Matic refrigerators.

The draft regulators come in two sizes, 6 in. and 9 in., the former selling for \$6 and the latter for \$9.

**Walk-in
Boxes and****Airswitches go together**

On replacement jobs this simple automatic control helps you guarantee temperature uniformity

The Airswitch—original and only bi-metal operated mercury-switch control for refrigeration—is just made for that replacement job you are offering to food and meat dealers and others with walk-in boxes.

Sensitive and accurate. Wide in range. Easy to adjust. Good for years of service. The Airswitch has proved to be *permanently* the kind of control that reflects to your credit as a dealer and keeps your customers happy.

Permanent accuracy comes from the design. Bearings, linkage and other trouble-making details are absent. It's simply an enclosed mercury switch mounted on a non-corrosive spiral. What could be more simple, or more completely immune to the effects of dust, dampness and corrosive atmosphere!

**MINNEAPOLIS-HONEYWELL
and TIME-O-STAT
Refrigeration Controls**

The Airswitch is strongly built. And you'll like its good looking ivory finished case. Let us give you complete information.

Minneapolis-Honeywell Regulator Co., 2807 Fourth Avenue, South, Minneapolis, Minn. *Factories:* Minneapolis; Elkhart, and Wabash, Ind. *In Canada:* Minneapolis-Honeywell Regulator Company, Limited, Toronto and Montreal. *Branch Offices:* New York, Philadelphia, Boston, Providence, Hartford, Detroit, Cleveland, Chicago, St. Louis, Indianapolis, Milwaukee, San Francisco, Syracuse, Rochester. *Export:* 801 Second Ave., New York. *Cable Address:* "Laboramus." *Distributors* in all principal cities.

To Maintain
Constant Low Temperatures—

Artic

(R & H Methyl Chloride)

is the IDEAL REFRIGERANT.

In many industries where low temperatures are essential to the quality of the product, ARTIC is the preferred refrigerant.

With ARTIC—

—Evaporating temperatures down to -10°F. are easily attained without creating a vacuum on the low pressure side of the system.

—In evaporating, heat is quickly removed from the refrigerated zone and low temperatures constantly maintained.

Write for Further Information

The ROESSLER & HASSLACHER CHEMICAL CO.

Incorporated

Empire State Bldg., 350 Fifth Ave.

New York, N. Y.

precision built

Precision Built Shafts

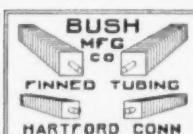
Modern shafts stand the gaff because they are precision built every step of the way. Booklet "SHAFTS" sent on request to interested executives.

MODERN MACHINE WORKS, INC.

156-160 Milwaukee St., Dept. D, Milwaukee, Wisconsin

CONDENSERS
STANDARD SIZES OR TO YOUR SPECIFICATIONS
FINNED TUBING

FOR BOTH HIGH
AND LOW PRESSURE
SYSTEMS



IN COPPER, BRASS
ALUMINUM OR
STEEL

THE BUSH MFG. CO.
HARTFORD, CONN.

W. H. MARK HANNA 6-247 General Motors Bldg. DETROIT, MICH.
REFRIGERATOR APPLIANCES, CHICAGO VAN. D. CLOTHIER, LOS ANGELES

**The enameling sheet with
increasing popularity—
“MICHIGAN METAL”**

**Sheets suitable for every
vitreous enameling need**

GREAT LAKES STEEL CORP.

Michigan Steel Division
Vineyard 2-3650

ECORSE, MICH.

TECUMSEH RD.

Bulletin No. 28



The Leland Electric Co.
Dayton, Ohio

Canadian Address Cable Address
Toronto "Lelect"

tells why builders of refrigeration equipment mount Leland motors on their product. Briefly, this special Leland motor has: A rubber-impregnated, cradle mounting that makes the motor vibration free. A simple and sure brush-lifting device that eliminates brush noises. A self-filtering lubrication system along with generous bearing areas that also contribute to the quietness in operation of this unit. Bulletin No. 28 explains

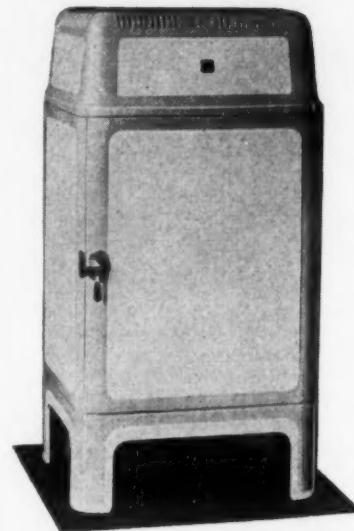
Leland Motors

**WOOD IS ELIMINATED
IN BRIGGS CABINETS**

DETROIT—Following the recent announcement that the Briggs Mfg. Co., one of the large builders of automobile bodies, has entered the refrigeration cabinet field, additional information has become available which indicates that automobile methods of construction are employed in the fabrication of the refrigeration cabinets.

Insofar as the elimination of wood is concerned, substantially the same automobile practice of using steel as a struc-

Briggs' Design



Automobile construction methods have been used in this cabinet.

tural member is followed in the design and construction of the Briggs refrigeration cabinet, according to Briggs engineers.

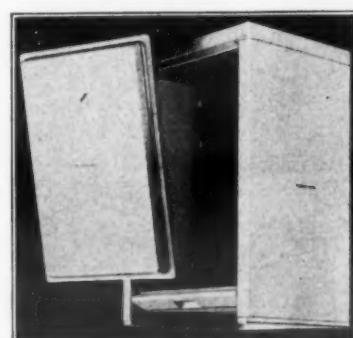
The accompanying illustration shows practically a monolithic type of Briggs cabinet construction, using slabs of insulation material, but no wood except the dowels used in the joints.

It is claimed that the monolithic structure can be chemically treated to resist moisture, due to the absence of open joints and cracks.

Special machinery and production methods developed in the Briggs plants have contributed materially to low cost production of refrigeration cabinets, the production engineers claim.

Electric welding of both the continuous and spot types is used exclusively to fabricate the steel base, outer shell, door, storage compartment and top,

Cabinet Construction



By using slab insulation, Briggs engineers have designed a cabinet free from wood except for dowels.

which are the chief units of steel assembled to form the complete cabinet. The design adapts itself readily to the installation of the refrigeration unit either at the top or bottom, it is claimed.

One of the features of the Briggs design is the use of piano type hinge, extending the full length of the door. This, together with the door latch and other hardware, is chromium plated.

Porcelain or lacquer finish is optional, and samples recently displayed at the Furniture Marts employed an attractive green and white color combination.

The Meldrum plant of the Briggs company in Detroit has been rearranged to provide for producing refrigeration cabinets on a large scale.

**YORK EXECUTIVE CRUISING
IN SOUTHERN WATERS**

YORK, Pa.—E. A. Kleinschmidt, secretary and executive treasurer of the York Ice Machinery Corp., and Mrs. Kleinschmidt are enjoying a vacation cruise to the West Indies and South America.

The party sailed from New York, Feb. 3, on the S. S. "Conte Grande." The itinerary includes land excursions at various ports, including San Juan, La Gurida, Colon, Kingston and Havana.

Mr. Kleinschmidt has been associated with the York Ice Machinery Corp. and affiliated companies for the past 20 years.

Gibson's Symphony in Black



John Lewis, Gibson vice president (right), alongside a black model.

**Pearce Explains Factors Determining
Truck Insulation Efficiency**

By Gale T. Pearce*
Dry-Zero Corp., Chicago

IN THE insulation of truck bodies for refrigerated transport, it is not practical to assume any given efficiency of insulation to be proper for all requirements. The temperatures desired, materials to be handled, length of run, and type of refrigerant, will all have a bearing on the decision as to the most desirable efficiency of truck body insulation.

The lower temperature will, of course, require a greater efficiency than the higher ones, and the more costly refrigerants will make it advisable to limit to a minimum, the heat entry into the body. Safety factors will frequently be the determining element in deciding the efficiency required on an insulated body.

Construction Determining Factor

Whatever the required efficiency may be, and regardless of the method of insulation employed, the construction of the body will determine both the initial efficiency and the period of economical service which may be expected of the insulated body.

With a given insulating material of a determined thickness, the initial efficiency secured will depend upon how completely the inner lining of the body is isolated from the exterior shell.

The structural elements necessary in all truck bodies should be kept to a practical minimum, as each board foot of high conductivity material will increase proportionately the heat transfer secured.

No through metal of any sort is excusable, even though in light duty insulated bodies, the extra refrigeration required is sometimes negligible from the standpoint of refrigeration costs.

Corrosive Action Rapid

Through bolts and metal carried through the walls at openings invariably provide low temperature points on the exterior of the body which are subject to corrosive action, and require frequent refinishing to maintain a good appearance.

As an example of this, the heat entry of a refrigerator car with a wall of .10 conductivity was reduced approximately 20 per cent by countersinking the hinge bolts, and breaking the 3-16-in. steel plate at the bottom of the door.

In many types of service it is convenient to refrigerate the load to be carried to a temperature below the delivery temperature, and thus use the extra refrigeration in that load as a means of absorbing the normal heat entry into the body.

This method of operation is usually found to be more economical than providing means of absorbing the heat entering with refrigerating mediums or machines.

Under many conditions, however, such operation is not practical and, therefore, salt and ice, solid carbon dioxide, or mechanical units must be provided to absorb the heat entering the body through the walls and on account of

*Talk given before the "Refrigerated Truck" session of the Detroit Section of the American Society of Refrigerating Engineers, on Feb. 15.

door openings, if the desired temperature is to be maintained in the body.

In some instances, the load is placed in the body in a warm condition, and it is desired to reduce this temperature rapidly in order to arrest ripening of fruit. Under these conditions, the refrigeration required to reduce the temperature of the load will usually be several times that which would normally be required to absorb the heat entry through the body walls. Each refrigerated transport problem should be carefully analyzed.

The insulation efficiency normally recommended for the various operating conditions may be taken as follows:

B.t.u. per hour
per degree
per square foot

Type of truck	Bakery, Candy, and Bread trucks	.16
Meat truck for fresh and smoked meats	.12 to .10	
Sausage and fresh cut meats	.10 to .06	
Ice cream and quick-frozen foods	.06 to .05	
Solid carbon dioxide	.025	

Exceptions to the above include: any equipment to be refrigerated with solid carbon dioxide should have a wall conductivity of not more than .06 on account of the saving in the quantity of refrigerant used.

Controls Improved

The same applies somewhat to mechanical units as the highest efficiency of wall construction will provide a safety factor which will insure against damaging conditions of temperature developing in the event of any disablement of the truck or cooling unit.

Many new types of refrigerating equipment have been developed in the past year, and improvements have been made on equipment previously used.

Control methods for temperatures have been brought out, employing insulation between the solid carbon dioxide and the cooling surface of the bunker, and new applications of the method of utilizing the solid carbon dioxide as a condenser of the refrigerating gas are in use.

This type of equipment provides a closer automatic control of temperature than has previously been secured with solid carbon dioxide refrigeration.

Reduces Heat Entry

The prevention of unduly low temperatures within the body naturally reduces the heat entry, and, therefore, the consumption of solid carbon dioxide required. Although prices for solid carbon dioxide have undergone a distinct reduction, the high efficiency of the insulation wall is still required for economical operation.

Among the manually operating types of dry-ice controls are those manufactured by Fitz Gibbon & Crisp, Mayer Body of Pittsburgh, American Car and Foundry, Hackney Brothers, and the Dry-Ice Corp. A thermostatically controlled unit has recently been put on the market by York Ice Machinery Co., and is, at the present, being used in the York-Hoover line of refrigerated bodies.

Wyllie Traces Development in Field Of Refrigerated Trucks

By John Wyllie*
Kelvinator Engineer

OF THE various systems that have been used to refrigerate motor trucks, probably each one is suited for some particular type of service. No one system appears to incorporate all features needed to give it acceptance for every service.

One of the first methods of refrigerating a truck was the solid CO_2 system, and when that was brought before the attention of the public, it was considered at that time as being the ultimate method of truck refrigeration. Solid CO_2 was somewhat expensive at that time, but there was a possibility of it being reduced in price, and everyone thought that was the answer to truck refrigeration.

Solid CO_2 has been used, and is still being used, but is by no means the best way of doing it. There are several reasons why solid CO_2 has not come along faster than it has.

At the beginning it was expensive, and wasn't available in all localities, and the control system had not been particularly well worked out. As a result of all of those things, a good many people last year changed over their solid CO_2 bodies and attempted to refrigerate them mechanically. Some people took out mechanical equipment, and put in solid CO_2 systems.

Control of Evaporation

Solid CO_2 has not proven to be the one answer to refrigerate a truck. When it first came out, the control problem was given but little attention. The next step in the development of the solid CO_2 body was, of course, the method of controlling the rate of evaporation.

The control of heat flow to the solid CO_2 was a very marked step forward. As a result, one load of the refrigerant will last a great deal longer than it formerly did.

One thing that caused some difficulty and set-back to the solid CO_2 truck progress, was the poor construction of bodies which were built in the early part of the game for solid CO_2 . The refrigerant was blamed for high operating cost in many instances.

Use of Cooling Cartridges

Most truck users are somewhat averse to putting machinery in the truck. One of the next things which came along in the truck development was the use of the cartridge for cooling the body.

In this system a well-insulated body is charged with cartridges filled with some kind of a solution and cooled in a hardening room beforehand. A good many cartridge systems are in use at the present time; they give satisfactory refrigeration.

If there is any disadvantage connected with them, I think it is the handling of the cartridge's weight. It takes quite a number of cartridges to keep the body cool, and the charging of the cartridges into the truck, and the removal of them at the end of the run is something of a task.

*Talk given before the "Refrigerated Truck" session of the Detroit Section of the American Society of Refrigerating Engineers, on Feb. 15.

Another method which keeps the refrigerating machinery out of the truck is to use brine cooling in the roof of the truck. The truck comes in during the afternoon or evening, is connected up to a source of cold brine supply, and this low temperature brine is pumped through the coils in the roof of the truck. By morning the truck is at a very low temperature, so that for fairly short runs it is possible to load your truck with ice cream, and temperature will not be too high by the time it is brought in.

Limited to Short Runs

However, trucks with this system have a limited radius of operation, and depend on an outside source of refrigeration. For short ice cream routes, this is a fairly good method.

Somebody went a step further in this type of development and combined the cartridge system with the brine system. The cold brine cooled the body, the cartridge gave a greater range of operation.

Sooner or later methods of that nature run out, and we come down to mechanical refrigeration of the truck.

Power Problem Important

Fundamentally, it is the same type of system which we would use for a stationary box, but the driving of the unit is still somewhat of a problem. The first thing attempted was to use an a.c. motor only when the truck was in the garage. This system will maintain temperatures only on short hauls.

I know of several trucks operated in Chicago that use storage battery current to drive the compressor. Many people don't believe that it is the best way of doing it, but it is one way of doing the job.

When the problem of driving the compressor came up, practically everyone seemed to ask the question "why can't we drive the compressor from the truck engine transmission?" The conventional power take-off drive came along, but has one disadvantage—the compressor speed varies widely.

When you consider that a truck at idling speed may turn over 500 revolutions per minute, on highway 3,500, obviously if the compressor is running at top engine speed it can't be doing a good job at the slow speed. One speed should be satisfactory for road operation and the other for idling.

Disadvantages of Power Take-off

The two-speed power take-off has two disadvantages, three perhaps. The second speed power take-off is rather noisy, and somewhat expensive. It

puts a little too much responsibility on the driver. If he shifts from low to high he may cause damage to the compressor. If he is too lazy to shift he may lose the refrigeration effect. So that doesn't answer the problem completely.

Engineers were still anxious to use the power of the truck engine for driving the compressor. The next thing was the electrical way of doing it. The idea was to drive the generator from the truck engine.

The main disadvantage is that the generator is a rather complicated device, it is expensive to start out with, it is heavy and takes a lot of space, and it is rather delicate. The combination of all those things has prevented it from being widely used.

Use of Generator Engine

Another method was brought out by Fitz Gibbon & Crisp. They built a rugged direct current generator engine. It is mounted at the front end of the engine.

The output from the generator is passed through a carbon pile voltage control, and from there goes on to a truck motor control. It has a disadvantage of being somewhat expensive. Even with the direct current motor, one must have the alternating current motor for driving at night. This system has been quite satisfactory. Recently the system has been considerably simplified.

Gasoline Engines Introduced

Next we come to the use of the gasoline engine. The first gasoline engines put on trucks were not satisfactory. We took the gasoline engines which had been used for lawn-mowers and as a rule they were somewhat noisy.

Since that time gas engines have undergone considerable development, and now are very satisfactory for the purpose.

In using a gas engine there are quite a number of things to be considered. If we want to make the simplest kind of a system, we put on the manually operated engine. The driver gets out, starts up the engine, throws the manual clutch, and lets it run.

Some people seem to prefer a more automatic set-up than that, and so the next step was to put on an electric starter.

Some people wanted the fully automatic system, hence that type of engine was developed. Engines of that type are being used quite extensively at the present time.

Must Have Clutch

When the gas engine is used it must be equipped with a clutch or some easy means of disconnecting it from the compressor system. The user still wished to drive into the garage at night, stop the gas engine and turn on the electric motor. It would be nice if we could get away from that because we frequently run into direct current at one end of the run, and alternating current at the other.

The transmission type of drive, we still feel is advantageous to drive the compressor from the truck engine or transmission.

The chief problem is that of overcoming the speed difference. We have been working for some time on a device which is supposed to do that, and we believe that we have found a satisfactory way of overcoming that difficulty.

Compressor Mounting Problem

We have a unit which can be mounted on the power take-off shaft, and can be set to take whatever speed the transmission offers and produce a constant speed for the compressor.

It is a hydraulic device. It is set so that at an idling speed, and no matter how much faster than that the truck goes, the compressor is driven at normal speed. An over-running clutch is used so that at night an electric motor can be used for driving the compressor.

This unit is thrown in and out manually by the truck driver whenever the dash signal indicates that it should be thrown in or out.

Kelvinator's Drive

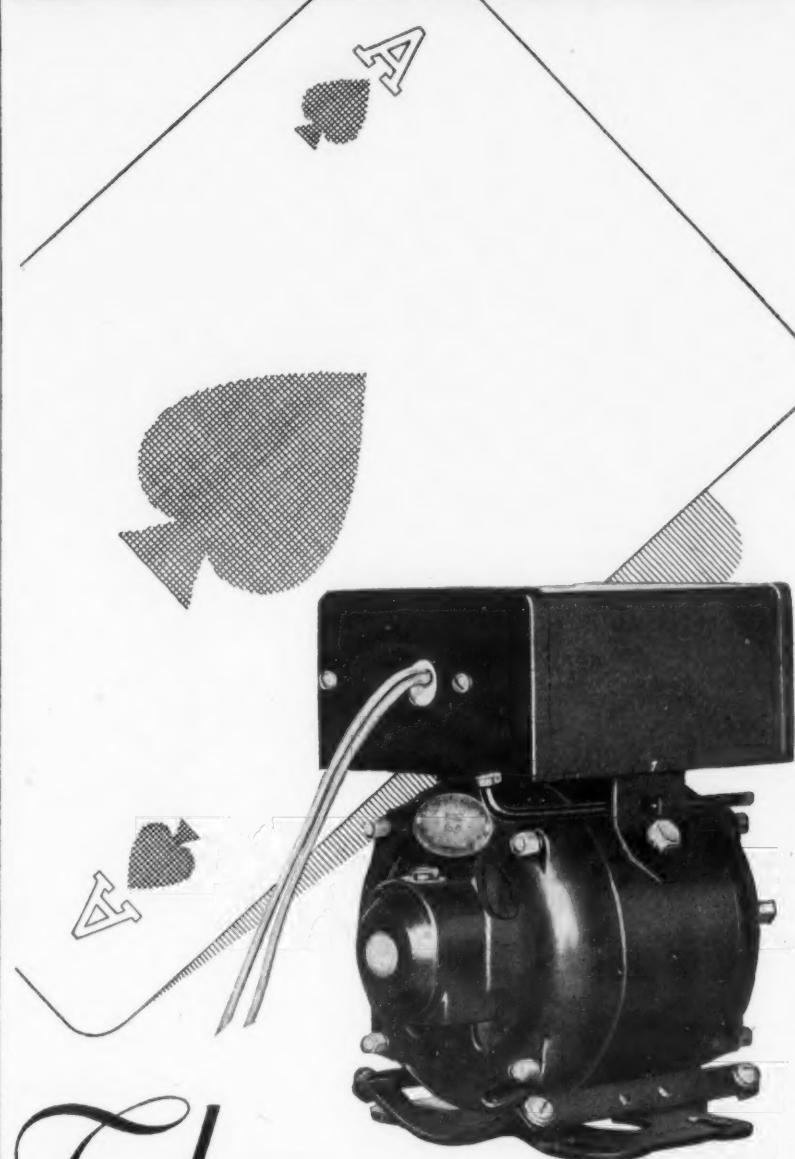
Where the compressor should be mounted is still an open question. As far as the compressor manufacturer is concerned, I believe he would rather mount it directly behind the cab, because there it is away from load splash, and can be rather well ventilated.

The body builder wants to mount it underneath the body because that would simplify body construction, and the compressor doesn't take up loading space. Both systems are being used.

There are several different types of cooling units in common use. First was the plain iron pipe coil that works out satisfactorily, but which is somewhat heavy. Next designers took a leaf out of the book of stationary refrigeration, and started putting fins on the cooling units. At first there was a tendency to put the fins too close together, and low temperatures encountered caused frosting across the fins. Now special fin coils are being built so that a very effective type has been developed.

Refrigerated trucks are the last step in an otherwise complete chain of food preservation. The packing house has its big refrigerators, the railways have refrigerated cars, the local merchant has his refrigerator, and the housewife has her refrigerator.

G-E TYPE KC



The ACE of MOTORS

THE General Electric Type KC

"care-free" motor for modern refrigerator drive has the absolute minimum of wearing parts. Everything about it spells simplicity, long life, and obvious dependability.

Get the facts about the Type KC; motor specialists in the nearest G-E office will be glad to tell you about this "care-free" drive . . . the Ace of Motors!

GENERAL ELECTRIC

210-158

SEEPAGE PROOF FITTINGS

To produce dependable fittings for automatic refrigeration requires a definite and precise knowledge of the industry's needs.

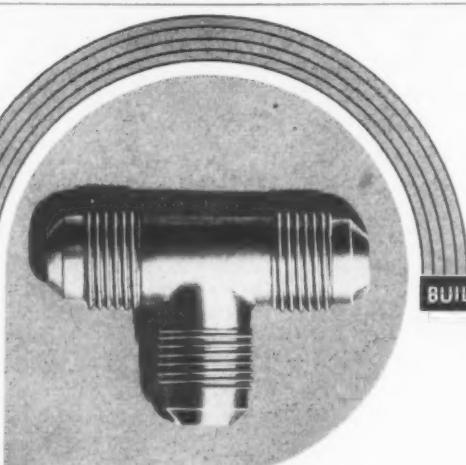
The "Know-how" is just as important as the facilities for production.

Commonwealth Brass fittings are made by a veteran organization, with every facility to produce over two million pieces daily. Leaders of the industry depend on Commonwealth because the "Know-how" never fails them.

Standard pieces or specials, at your option.

COMMONWEALTH BRASS CORPORATION
COMMONWEALTH AT G.T.R.R.
DETROIT, MICHIGAN

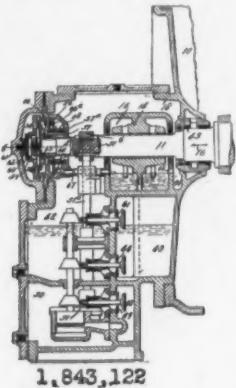
Send for catalog No. 36, fully descriptive of the line.



Latest Patents Issued in Refrigeration Field

ISSUED FEBRUARY 2

1,843,122. LUBRICATING, SEALING AND THRUST BALANCING MEANS FOR COMPRESSORS AND THE LIKE. Willis H. Carrier, Essex Fells, N. J., assignor to Carrier Engineering Corp., Newark, N. J. Original application filed Feb. 26, 1926, Serial No. 90,848. Divided and this application filed Nov. 3, 1928. Serial No. 317,029. 20 Claims. (Cl. 286—9.)



1. In a fluid compressor having a rotary shaft extending through an opening in the compressor casing, the combination of a liquid sealing device for said shaft opening comprising an annular sealing chamber surrounding said shaft, and an annular member which rotates with the shaft in said sealing chamber, means for maintaining sealing liquid in said sealing chamber, and a packing ring surrounding and having a running fit on said shaft in an annular cavity communicating with said sealing chamber, said shaft being adapted to rotate in said packing ring and said ring having a laterally sliding fit in said annular cavity whereby the ring can shift laterally in said cavity as the shaft rotates.

1,843,210. AIR CONDITIONING METHOD

PROFESSIONAL SERVICE

Testing Laboratory
For refrigerators
and refrigerating equipment
George B. Bright Co.
Refrigerating Engineers and Architects
2615 12th St., Detroit, Mich.

PATENTS
Searches, Reports, Opinions by a
Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents - Refrigeration Engineers
342 MADISON AVE. NEW YORK

REFRIGERATION COUNSEL
Since 1913
ENGINEERING - DESIGN - SALES
Patent and Testing Lab. Connections
CHAS. E. YATES
424 Hanna Bldg. Cleveland

AND APPARATUS FOR PASSENGER CARS. Jesse H. Davis, Baltimore, Md., assignor to B. F. Sturtevant Co., Boston, Mass., a Corporation of Massachusetts. Filed Oct. 19, 1929. Serial No. 400,929. 10 Claims. (Cl. 62—117.)

1. The method of conditioning the air in a passenger car, which consists in chilling water, circulating said water to a cooling surface, passing the air over said cooled surface to cool it and delivering said cooled air through ducts into the car.

1,843,397. DEVICE FOR FORMING AND STORING SOLID CARBON DIOXIDE. David A. Marcus and Walter W. Ogier, Jr., Pasadena, Calif., assignors to Nu-Ice Co., Los Angeles, Calif., a Corporation of Nevada. Filed June 18, 1928. Serial No. 286,351. 13 Claims. (Cl. 62—121.)

1. In a device of the class described, the combination of: walls forming a snow-chamber; an inlet-means for said snow-chamber; an outlet-means for said snow-chamber; walls forming a storage-chamber adjacent to said snow-chamber; and a snow-chamber door for closing an opening connecting said snow-chamber; and said storage-chamber.

1,843,747. COMPRESSOR OR PUMP. Edward Wilson, St. Louis, Mo. Filed April 8, 1929. Serial No. 353,379. 7 Claims. (Cl. 230—145.)

1. A compressor or pump comprising a stationary cylindrical head, a bearing below and a bearing above said head, a shaft extending through said head and journaled for rotation in said bearings, means for supporting said shaft by said bearings, an eccentric on said shaft between said bearings and partly enclosed by a part of said means, a cylinder enclosing said head and cooperating therewith to form a compression chamber, a hub on said cylinder extending into said head, a ring having a floating fit within said hub for operating said hub about said head, and antifriction devices for operating said ring by a part of said shaft supporting means.

1,843,817. HEAT EXCHANGE AIR CIRCULATING UNIT. John H. Holton, Norristown, Pa., assignor, by mesne assignments, to Carrier Research Corp., Newark, N. J., a Corporation of New Jersey. Filed Sept. 20, 1930. Serial No. 483,211. 10 Claims. (Cl. 257—137.)

3. A heat exchange air circulating unit comprising a heat exchange element, a casting enclosing said element and having two air inlets communicating with the room in which said casting is located, one of said air inlets supplying recirculated air to said exchange element and the other of said air inlets supplying recirculated air to mix with the heated air after the latter leaves said exchange element, a fan for discharging the mixed air to said room, dampers respectively controlling the air passing through said inlets, and means for actuating said dampers to maintain a constant volume of air in all positions of said dampers, the dampers being arranged to deflect the air entering from both inlets toward the inlet vortex of the fan.

1,843,865. AUTOMATIC ELECTRICAL HUMIDIFIER. Charles V. Cavan, Chicago, Ill. Filed Jan. 7, 1931. Serial No. 507,256. 4 Claims. (Cl. 219—38.)

1. In combination with a radiator, an automatic humidifier comprising an evaporating pan, fixed to said radiator, a water conduit connecting said radiator with said evaporating pan, means for maintaining a predetermined level of water in said evaporating pan, an electrical heating element associated with said evaporating pan, a thermostatic switch in close proximity with said evaporating pan, a second thermostatic switch on said radiator, said thermostatic switches and said electrical heating unit

being connected in circuit with a source of electrical supply.

TRADE-MARKS

Serial No. 317,623. All-American Mohawk Corp., Chicago, Ill., and North Tonawanda, N. Y. Filed Aug. 4, 1931.

CHILL-R-ATOR

For refrigerators of all types, refrigerating apparatus, and ice boxes including electric refrigerators and refrigerator parts. Claims used since April 15, 1931.

ISSUED FEBRUARY 9

1,843,913. REFRIGERATING APPARATUS. Philip M. Bratten, Fort Worth, Tex., assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed April 30, 1927. Serial No. 187,929. 9 Claims. (Cl. 62—95.)

1. A cooling device for refrigerators comprising, a tank including a body portion adapted to contain brine, and a plurality of shell type hollow walls forming narrow circulating ducts communicating with the body portion, said walls providing one or more flues for circulating air, and a cooling unit within the body portion for cooling the brine.

1,843,918. VITALIZER DISH AND COVER. George M. Cornell, Sheboygan, Wis., assignor to The Vollrath Co., Sheboygan, Wis., a Corporation of Wisconsin. Filed April 18, 1930. Serial No. 445,333. 2 Claims. (Cl. 62—1.)

1. In combination, a dish having a continuous top periphery, and a cover having a downwardly open peripheral recess adapted to receive said dish periphery to provide a relatively thin ventilating gap connecting the interior of said dish with the surrounding atmosphere, said cover having a depending head-like drip portion extending into said dish directly adjacent to the inner periphery of said gap, and said cover also having depending projections within said recess cooperable with the top of said dish periphery to form said gap.

1,843,945. REFRIGERATING PROCESS AND APPARATUS. Ransom W. Davenport, Detroit, Mich., assignor to Chicago Pneumatic Tool Co., New York, N. Y., a Corporation of New Jersey. Filed Nov. 25, 1928. Serial No. 497,963. 20 Claims. (Cl. 62—115.)

1,843,945. REFRIGERATING PROCESS AND APPARATUS. Ransom W. Davenport, Detroit, Mich., assignor to Chicago Pneumatic Tool Co., New York, N. Y., a Corporation of New Jersey. Filed Nov. 25, 1928. Serial No. 497,963. 20 Claims. (Cl. 62—115.)

1. The method of corrugating tubular walls which comprises forming spaced broad outward corrugations therein and contracting the intermediate portions to form inward corrugations, and then deepening and narrowing the outward corrugations by hydraulic pressure.

1,844,469. METHOD OF MAKING TUBULAR METALLIC BELLows. Jean V. Giesler, Knoxville, Tenn., and Fred K. Bezzelberger, Cleveland, Ohio, assignors to The Fulton Sylphon Co., Knoxville, Tenn., a Corporation of Delaware. Filed July 18, 1928. Serial No. 293,782. 15 Claims. (Cl. 153—73.)

1. The method of corrugating tubular walls which comprises forming spaced broad outward corrugations therein and contracting the intermediate portions to form inward corrugations, and then deepening and narrowing the outward corrugations by hydraulic pressure.

1,844,522. PROCESS FOR REFRIGERATION. Eugene Oster, Norwood, Ohio. Filed Dec. 24, 1929. Serial No. 416,238. 4 Claims. (Cl. 62—173.)

3. A method of molding and hardening plastic material which consists in placing a plastic mass in a suitable mold, subjecting the surface of the mold to a low temperature to quickly freeze the peripheral part of the mass, removing the mass from the mold and then freezing the remainder of the mass after removal of the substance from the mold.

1,844,528. REFRIGERATING APPARATUS. Harry F. Smith, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed March 31, 1930. Serial No. 440,497. 10 Claims. (Cl. 251—24.)

2. A valve comprising in combination a deformable tube, a seat on the end of the tube, a flexible diaphragm including a projection adapted to engage the end of the tube, and means for holding the projection against the seat to deform the tube.

1,844,541. REFRIGERATING APPARATUS. Robert Clayton, Overbrook, Pa., assignor of one-fourth to P. Frank Sonnek, Woodhaven, N. Y. Filed Dec. 6, 1930. Serial No. 500,505. 6 Claims. (Cl. 62—108.5.)

1. The combination with a cooling unit of a refrigerating machine adapted to house a tray in which water may be frozen, of means for breaking ice which may form between said tray and the surrounding portions of said cooling unit, said means embodying elements for simultaneously applying pressure to said tray in intersecting planes.

1,844,677. REFRIGERATION. Frank D. Peltier, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed May 19, 1931. Serial No. 538,461. 9 Claims. (Cl. 62—91.5.)

9. The method of refrigerating which comprises removing heat from a medium to be cooled to vaporize a liquid refrigerant, condensing the refrigerant by transferring heat to a quantity of non-freezing

North Canton, Ohio, a Corporation of Ohio. Filed Jan. 24, 1930. Serial No. 423,125. 8 Claims. (Cl. 62—119.5.)

1. An evaporator for refrigerating systems comprising a vessel having a plurality of inlet pipes and an outlet pipe connected thereto, means in said vessel for causing fluids supplied through said inlet pipes to remain separated from one another so long as they are in the liquid phase while permitting the fluids to mix freely therein after they have evaporated and means for forming a liquid seal at the lower end of said inlet pipes.

1,844,677. REFRIGERATION. George Hilger, Chicago, Ill. Filed May 7, 1927. Serial No. 189,610. 15 Claims. (Cl. 62—126.)

1,844,677. REFRIGERATION. George Hilger, Chicago, Ill. Filed May 7, 1927. Serial No. 189,610. 15 Claims. (Cl. 62—126.)

1. A water cooler comprising a cabinet, a faucet for discharging water from the cabinet, a pair of brackets mounted on said cabinet to one side of the faucet, a drain pipe mounted between said brackets, a swivelly mounted drip basin carried on the upper end of said drain pipe adapted to be normally disposed beneath the faucet but swingable away from such position to permit a larger vessel to be placed beneath the faucet, means for fastening the drip basin in fixed position beneath the faucet, and a supporting member for the drip basin connected to the drain pipe and inclined upwardly into engagement with the drip basin.

1,844,745. ICE CREAM FREEZER. Wilbur D. Crosby, Livingston, Calif. Filed Aug. 13, 1929. Serial No. 385,547. 15 Claims. (Cl. 259—64.)

1. An ice cream freezer of the character described comprising, in combination, a pair of freezing cylinders; a working head presenting gaskets sealing the ends of said cylinders; means to clamp the head on the cylinders; a pair of paddles carried by the head and having shafts journaled therein; worm gearing connected to drive said paddle shafts; a motor on the head connected to drive said worm gearing; and a housing within the working head for said driving connections.

1,844,822. REFRIGERATOR PLANT. Eric George Rowledge, New Eltham, London, England, assignor to J. Stone & Co., Ltd., Deptford, Eng., a Company of England. Filed July 8, 1929. Serial No. 376,651, and in Great Britain July 13, 1928. 2 Claims. (Cl. 62—117.)

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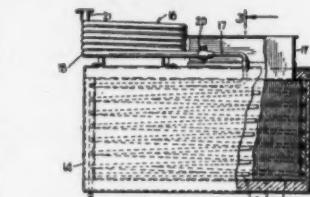
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2. In a refrigerating installation for railroad cars subject to various stopping and starting operations for undetermined periods of time a thermo-dynamic refrigerating apparatus operative during the periods of operation of the car, said apparatus having a low temperature element an elevated chamber, a brine accumulator located in said chamber and in heat exchange relationship with said low temperature element, a refrigerating chamber having an air circulation connection with the elevated chamber, and valve means to control said circulation connection to induce freezing of the brine in the accumulator for use during said undetermined periods of cessation of operation of the thermo-dynamic action.

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1,844,677

liquid, and removing heat from said liquid to vaporize solid carbon dioxide.

1,844,709. WATER COOLER DRIP BASIN. Edward T. Williams, Pelham Manor, New Rochelle, N. Y. Filed Oct. 7, 1930. Serial No. 486,928. 4 Claims. (Cl. 225—23.)

1. A water cooler comprising a cabinet, a faucet for discharging water from the cabinet, a pair of brackets mounted on said cabinet to one side of the faucet, a drain pipe mounted between said brackets, a swivelly mounted drip basin carried on the upper end of said drain pipe adapted to be normally disposed beneath the faucet but swingable away from such position to permit a larger vessel to be placed beneath the faucet, means for fastening the drip basin in fixed position beneath the faucet, and a supporting member for the drip basin connected to the drain pipe and inclined upwardly into engagement with the drip basin.

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2. In a refrigerating

SPECIALIZING
in
REFRIGERATION CASTINGS
made of
ELECTRIC FURNACE IRON
or
SEMI-STEEL and GREY
IRON ALLOYS
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Legs. Top Hole Sections.
Lid Collars, Sleeves, Brine
Hole Stoppers for Ice Cream
Cabinets, etc. Specializing in
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tomer's Design.
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**DRINKING WATER
FAUCETS**
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Refrigerators—Water Coolers
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**APEX
Automatic
Refrigeration
Specialties**
Expansion Valves,
Pressure Control
Water Regulators, Gas Pressure
Regulators, and
Water Pressure
Regulators.
APEX REGULATOR COMPANY
DIVISION OF
FISHER GOVERNOR COMPANY
MARSHALLTOWN, IOWA

**SELF-CLOSING
BALL-BEARING
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STOP**

FOR WATER COOLERS
Send for booklet on complete line of self-closing
faucets, bubblers, glass fillers, and other accessories.

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2950 East 55th St.
CLEVELAND OHIO

Chicago Service School Offers Residence Course



The laboratory of the Sterle Refrigerating Institute, Chicago, is equipped with standard models for the use of students' experiments.

Correspondence Course Also Offered by Sterle

CHICAGO—Both a resident laboratory course and a correspondence course in electric refrigeration now are offered by the Sterle Refrigerating Institute, in new quarters at 219 West Chicago Ave.

H. H. Sterle, a graduate of Armour Institute of Technology, supervises instruction in the courses. F. R. Coggburn is managing director of the institute, courses in which are open to men regardless of the previous extent of their education.

Lectures and laboratory work with models of the various makes of refrigerators are supplemented with actual service work, in the resident course. The institute maintains a service department which ties in with the classes themselves.

Service men from the school are available to refrigerator owners for service calls, and in addition maintain an inspection service. Commercial refrigerator owners, apartment house managers, and individual household refrigerator owners order this service, which consists of inspection and any necessary repair or replacement in the refrigerator at regular intervals, according to Mr. Coggburn.

The classes cover such subjects as: electrical refrigeration (development and use); explanation of heat; kinds of heat; evaporation; condensation; refrigerators (various types); refrigerating systems; description of various makes; classification of machines.

Selection of required type; proper installation; how to make brine and its use; operation of systems; types of valves, coils, motors, compressors, controls, condensers.

Troubles encountered in installation—what to look for and how to overcome various difficulties; defects and how eliminated; service requirements; installation, commercial and apartment house; multiple installation; field service; model repair shop and its uses; shop practice and instructions in repair.

Students in the day classes may complete the course in five weeks; the night course, consisting of classes three evenings each week, lasts for 10 weeks. The correspondence course follows as closely as possible the more practical training possible in the institute's shops and laboratories, Mr. Coggburn claims.

WESTINGHOUSE SERVICE SCHOOL HELD ON COAST

(Concluded from Page 1, Column 5)
Supply, Portland, Ore.; K. K. Gordon, Westinghouse Electric & Mfg. Co., San Francisco; B. W. Hartman, Hartman Bros., Ltd., Palo Alto, Calif.; L. A. Spinetti, Spinetti Bros., Jackson, Calif.

R. K. Akin, Fobes Supply Co., Seattle; D. J. Unger, Unger Electric Co., Paso Robles, Calif.; M. J. Lamperth, North Bay Electric Works, San Rafael, Calif.; H. L. Pfeffer, North Bay Electric Works, San Rafael, Calif.; J. L. Neely, Rose & Stevenson, Healdsburg, Calif.; J. Fogelstrom, Colvin-Templeton, Inc.

M. A. Irwin, Westinghouse Electric Supply Co., San Francisco; C. Syvertsen, C. Syvertsen & Sons, Marysville, Calif.; E. England, O. S. Bass Co., Chico, Calif.; George Gumane, Ray Thomas, Inc., Los Angeles; Tom Arnold, Arnold Bros., Sacramento, Calif.; Fred M. Hanson, Hanson Radio Shop, Gerber, Calif.

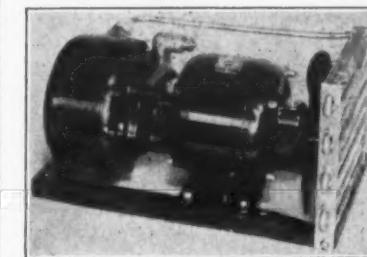
F. V. Falenyer, Davis Electric Co., Coalinga, Calif.; E. F. Klewer, Turner Hardware Co., Stockton, Calif.; Elmer Johnston, Westinghouse Electric & Mfg. Co., Spokane, Wash.; V. D. Davis, Davis Electric Co., Coalinga, Calif.; R. L. French, Westinghouse Electric Supply Co., Los Angeles; Harvey K. Watt, LaMotte & Callaway, Inc., San Diego, Calif.; M. A. Parry, M. A. Parry Co., Loleta, Calif.

METAL SAW & MACHINE BRINGS OUT COMPRESSOR

(Concluded from Page 1, Column 2)
most satisfactory. Portland cement plaster may also be used with metal lath, according to the announcement.

Super Service corkboard is supplied in sheets 12 in. by 36 in., 1 1/2, 2, 3, and 4 in. thick.

The new corkboard, because of its protection from infiltration, is especially adapted for "hard service" conditions such as ice storages, fur vaults, sharp freezers of all kinds, ice cream hardening rooms, milk storage, etc.



Metal Saw & Machine Co. compressor.

to be sufficient to produce 150 units a day. Howard L. Washburn, treasurer and manager, and R. L. Alexander, refrigerating engineer, have applied for patents on the new unit.

NORGE TESTS SHIPMENT BY ANCHOR BAND STRAPS

DETROIT—To test the anchor-band strap system of preventing refrigerators from shifting in freight car transit, executives of the Norge Corp. and of several railroads recently witnessed a demonstration in which refrigerators were fastened to the cars' walls by this method. Tests were conducted by L. A. Krier of the Norge traffic department.

In the first test, two freight cars travelling from 8 to 10 miles an hour and loaded with refrigerators were allowed to come in contact with a string of other cars on which the brakes had been set.

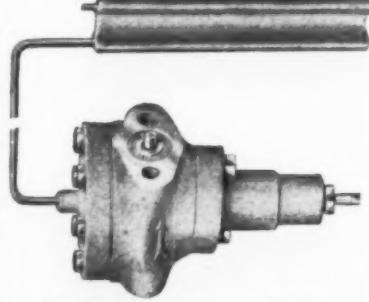
The impact register in the cars recorded into zone four, which indicates much rougher handling than normal conditions would offer, the railroad officials reported, and both band and lading were checked and found in good condition.

In the second test the two cars were given a shock equivalent to cars coming in contact with each other at a speed of from 12 to 14 miles an hour. Here the impact register moved to zone five. The bands and lading were again checked, and found all right, the officials state.

The anchor bands used were 1/4-in. steel straps, three of which were fastened to the car wall, and passed around the front section of the refrigerators at each end of the car.

Attendants at the meeting included L. A. Krier, traffic department of Norge Corp.; W. P. Evans, Muskegon agent of the Pere Marquette; Glenn Gibson, P-M yardmaster; C. H. Cutaback, Muskegon agent of the Grand Trunk; J. F. Swain, G-T claim inspector from Durand; C. E. Morley, agent of the Pennsylvania Railroad.

New Alco Valve



Junior Alco Thermo Valve.



Principles of refrigeration and the application of them are studied in the classroom before work is done in the laboratory.

Armstrong Corkboard

(Concluded from Page 1, Column 2)
most satisfactory. Portland cement plaster may also be used with metal lath, according to the announcement.

Super Service corkboard is supplied in sheets 12 in. by 36 in., 1 1/2, 2, 3, and 4 in. thick.

The new corkboard, because of its protection from infiltration, is especially adapted for "hard service" conditions such as ice storages, fur vaults, sharp freezers of all kinds, ice cream hardening rooms, milk storage, etc.

FERGUSON NAMED ASSISTANT SALES HEAD OF VALVE FIRM

BRIDGEPORT, Conn.—James P. Ferguson has been appointed assistant general manager of sales of the Reading-Pratt & Cady Co., manufacturer of bronze, iron body and steel valves and asbestos packed cocks.

The Reading-Pratt & Cady Co., an associate company of the American Chain Co., Inc., has plants at Hartford, Conn., and Reading, Pa. Mr. Ferguson has been associated with the company for the last 10 years as a sales engineer.

CONDENSATION

• An Enemy to Metal Cabinets

**Superior
Galvannealed**
PATENTED PROCESS

**Superior
"Super-Metal"**
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These sheets are recommended for use where unusual corrosion-producing conditions are present. They combine superior rust-resisting qualities, along with durability, workability and fine appearance. They take paint, lacquer or baked enamel readily, without special treatment, and it adheres satisfactorily. The coating will not chip, flake or peel, and it will withstand difficult forming without fracture.

These sheets are especially suitable for refrigerator, ice cream and various cabinets.

SUPERIOR SUPER-METAL is a Superior Quality, Patented Process, Zinc Coated Sheet especially suitable for cabinet work.

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